

The Mining Journal.

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[The MINING JOURNAL is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.]

No. 2021.—VOL. XLIV.

LONDON, SATURDAY, MAY 16, 1874.

[WITH SUPPLEMENT.] PRICE FIVEPENCE. PER ANNUM, BY POST, £1 4s.

MR. JAMES H. CROFTS, STOCK AND SHARE BROKER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
(SUCCESSOR TO JAMES CROFTS.)
Established 1842.

BUSINESS transacted in every description of BRITISH and FOREIGN Stocks and Shares, and in all COLLIERY and IRON Shares.
SPECIAL BUSINESS in shares not having a general market value.
Loans negotiated upon marketable Mining Shares and other approved Stocks.
The principal mining papers filed every week for the use of clients. A Price List issued every evening at Five o'clock.

SPECIAL BUSINESS in the following COLLIERIES:—Cardiff and Swansea, Clee Hill, New Shariston, Silkestone, United Bituminous, Welsh Freehold, and Hockley Hall.
BUSINESS in Glaisdale Quarry Shares.
MINES:—Emma, Flagstaff, Old Treburgett, Richmond, Tankerville, Van Con-sols, West Tankerville.
Bankers: City Bank, London; South Cornwall Bank, St. Austell.

MR. W. H. BUMPUS, STOCK AND SHARE DEALER,
44, THREEDNEEDLE STREET, LONDON, E.C., has FOR SALE the

following SHARES, at prices annexed, free of commission:—
150 Abernethy, £1 15s. 9d. 20 Grogwinion, 41s. 3d. 25 Richmond, £7 1/2.
50 Ashton, £2 15s. 9d. 5 Herodfoot, 150 Rica (Gold), 7s. 6d.
50 Bampfylde, 40 Ladywell, £3 1s. 3d. 25 South Carn Brea, £3 1/2.
40 Bog, 21s. 40 Last Chance, £2 6s. 3d. 20 Sweetland Ck., £4 6 3/4
20 Birdseye Ck., £3 11s 3 20 Malpas, 15s. 6d. 100 So. Aurora, 13s. 6d.
50 Chontales, 15s. 6d. 50 Marke Valley, 14s. 15 Tankerville, £9 7/8.
75 Chapel House Colliery, 1 Tincoff, 100 So. Cornwall, £1 1/2.
(£3 fully pd.), £4 1/2 75 Malabar, 15s. 6d. 75 Tecoma, £1 1/2.
10 Cape Copper, £2 1/2 5 Minera, £1 1/2 50 Utah, 21s. 6d.
1 Carn Brea, 20 New Dolcoath, 11s. 40 Unit. Mexican, £3 16 3/4
40 Clee Hill Coll., 11s. 6d. 40 New Quebrada, £3 11 3 5 Van, £2 1/2 1/2
25 Cedar Creek, £2 1/2 70 Old Treburgett, 17s. 6 30 Van Consols, £4 8s. 9d
2 Dolcoath, £4 7 50 Penstruthal, 18s. 50 W Tankerville, 35s
50 Emma (Silver), £2 6 3 100 Prince of Wales, 11s 100 West Maria, 13s.
10 East Lovell, 50 Plynlimmon, 6s. 9d. 40 Wh. Mary Hute, £3
25 East Caradon, 19s. 6d. 50 Perkins Beach, 8s. 9d. 20 Wheel Crebor, £2 1/2
40 Eberhardt, £3 1/2 10 So. Cornwall, £1 1/2 15 Wheel Grenville, £5 1/2
25 Flagstaff, £4 10 Roman Grav., £1 1/2 20 Wheel Pevor.
100 Furze Hill, 70 Rookhope, 20s.

W. H. B. transacts business in every description of Stocks and Shares at the best market prices, and free of commission.
Bankers: National Provincial Bank of England, E.C.

MR. E. J. BARTLETT, STOCK AND SHARE DEALER,
No. 30, GREAT ST. HELEN'S, LONDON, E.C., transacts business at
best prices in every description of security.
Colliery Shares, well selected, will afford good returns. E. J. B. has for sale
some fully paid shares in thoroughly *bona fide* undertakings, with a guarantee of
10 per cent. Full particulars on application.

**MR. JOHN RISLEY (SWORN), STOCK AND SHARE
BROKER, 77, CORNHILL, LONDON, E.C.,**
Brokerage on Buying or Selling shares of £4 and upwards, 1 1/4 per cent., and
1s. per share on each under £4.

FERDINAND R. KIRK, STOCK BROKER,
5, BIRCHIN LANE, E.C.
Welsh Freehold, United Bituminous, and Glaisdale Quarry Shares are worth
buying.

NEWCASTLE CHEMICAL.—SPECIAL BUSINESS as BUYER or SELLER.
BUSINESS at close prices in:—
Cape Copper, Eries, Welsh Freehold.
Cedar Creek, Egyptians, Whitehaven Iron.
Cardiff and Swansea, Atlantics, Silkestone Fall.
Chapel House, Flagstaff, Littleddan.
Clee Hill, Dolcoath, West Mostyn.
BUYERS of New Shariston and Dunraven Adare are invited to communicate.
Consols, Foreign Bonds, Railways, and every security quoted in "Change bought
and sold." Fortnightly accounts opened on references being given.
Bankers: London and Westminster, and City Bank.

MR. WILLIAM WARD
(Late WARD and LITTLEWOOD).
CROSBY HOUSE, 95, BISHOPSGATE STREET WITHIN, E.C.,
DEALS in ALL KINDS OF STOCKS and SHARES, for cash or the account.

MR. HENRY MANSELL, STOCK AND SHARE DEALER,
14, GREAT WINCHESTER STREET, LONDON, E.C.
H. M. recommends the purchase of COLORADO TERRIBLE shares.

**MR. W. TREGELLAS, 122, BISHOPSGATE STREET
WITHIN, E.C.,**
Deals in all descriptions of Stocks and Shares at close market prices.

**MESSRS. W. DUNN AND CO. STOCK AND SHARE
DEALERS, 3 AND 4, GREAT WINCHESTER STREET BUILDINGS,
LONDON, E.C.**

Orders received and commissions executed.
Bankers: National Provincial Bank of England.
W. D. and Co. have FOR SALE the following at net prices:—
20 Birdseye Creek, £3 15s 50 Old Treburgett, 15s 9d 5 Tankerville, £9 7s. 6d.
1 Dolcoath, £4s. 25 Pennerley, £1 5s. 10 Trumpet Cons., £1 15s.
5 East Lovell, £12 10s. 50 Prince of Wales, 10s 6d 5 W. Chiverton, £2 15s 6
5 East Pool, £10. 5 Roman Grav., £16 10s 5 West Maria, 11s.
13 Grogwinion, £1 17s 6d 20 Herodfoot, 16s. 6d. 15 Wheel Agar, £1 12s 6d
20 Kingston Down, 18s. 10 So. Condurrow, £3 17s 6 5 Wh. Kitty (St. Agnes),
20 Ladywell, £3. 40 So. Roman Grav., 10s. £3 5s.
10 Lovell (Tin), £1 15s. 20 South Tolcarne, 10s.

HARLAND AND CO. STOCK AND SHARE DEALERS,
235 AND 236, GRESHAM HOUSE, LONDON, E.C.
Transact business in every description of Stocks and Shares at net prices, and re-
commend investment in—Chapel House, Altamir, Cardiff and Swansea, Welsh
Freehold, United Bituminous, and Clee Hill Collieries—Tyllwyd, Bog, Denbigh-
shire, West Tankerville, Tankerville, Lovell, Roman Gravels, Sweetland Creek, and
Birdseye Creek.
Circular and Daily Price List gratis.
Bankers: London and County Bank.

MESSRS. MILLER AND CO. STOCK AND SHARE DEALERS,
61 and 62, QUEEN'S BUILDINGS, QUEEN VICTORIA STREET,
LONDON, E.C., PUBLISH A DAILY and WEEKLY LIST of Prices of Funds,
Government Securities, Banks, Railways (home and foreign), Mines, Docks, Gas,
Telegraph, Waterworks, and miscellaneous companies shares.
Messrs. MILLER and Co. have Special Business in the THAMES and GENERAL
LIGHTERAGE and TRANSPORT COMPANY (Limited) at close market prices; and are
Sellers of Eberhardt, East Lovell, Emma, Roman Gravels, Last Chance, Bampfylde,
and New Quebrada.
All orders promptly attended to, for cash or account.
Bankers: Prescott, Grote, Cave, and Co., Threanedneedle-street, London, E.C.

MR. GEORGE BUDGE, STOCK AND SHARE DEALER,
No. 4, ROYAL EXCHANGE BUILDINGS, LONDON, E.C.

MESSRS. WM. MARLBOROUGH AND CO.,
29, BISHOPSGATE STREET WITHIN, LONDON, E.C. (Established
18 years), have FOR SALE the following SHARES at prices annexed:—
20 Ashton, £3 1s. 3d. 25 Kingston Down, 18s 9 20 Sweetland Creek, £4 6 3/4
20 Almada, 16s. 3d. 25 Herodfoot, 16s. 3d. 50 So. Condurrow, £3 13 3/4
20 Bog, 13s. 9d. 10 Ladywell, £3 1/2 45 So. Australian, 10s.
20 Birdseye Ck., £3 11 3 75 Last Chance, £2 3s. 9d 50 So. Roman Grav., 11s.
20 Bedford United, 16s 3d 50 Marke Valley, 9s. 50 South Frances, £13 1/2
40 Colorado, £4. 25 Malpas, 12s. 6d. 3 South Caradon, £6s.
3 Carn Brea, £2s. 25 Malabar, 13s. 9d. 40 Thornhill Reef, 15s. 9d
30 Cape Copper, £2 1/2 5 Minera, 15 Tankerville, £9 16s 3d
30 Chontales, 15s. 5 New Dolcoath, 11s. 3d. 5 Tecoma, 17s. 9d.
5 Cook's Kitchen, 20s. 45 Old Batholes, 5 Tincoff, £2 1/2 1/2
3 Dolcoath, £4 1/2 20 Old Treburgett, 16s. 3d 5 West Tolgus, £4 1/2
20 Eberhardt, £3 13s. 9d. 20 Old Treburgett, 16s. 3d 20 West Busset, £10 1/2
10 East Lovell, £12 1/2 40 Penstruthal, 18s. 9d. 15 W. Chiverton, £2 16 3/4
50 East Van, £16s. 3d. 50 Pennerley, 30s. 20 Wheel Uny, £2 1/2
15 East Pool, £10s. 3d. 10 Prince of Wales, 11s. 50 Wheel Whisper, 11s.
20 Emma, £2 1/2 10 Roman Gravels, £16 3s 9 25 W. Tankerville, £1 13 3/4
40 Flagstaff, £3 16s. 3d. 20 Rosewall Hill, 9s. 6d. 20 Wheel Crebor, £2 6 3/4
40 Great Yor, 15s. 3d. 20 Rookhope, 20s. 25 Wh. Grenville, £5 3 3/4
20 Richmond, £7 3s. 9d. 20 Wheel Kitty, 4s.

**INVESTMENT OR SPECULATION.—A SELECTED LIST
OF RAILWAYS, BANKS, MINES, COLLIERIES, COLONIAL SECURITIES,
FOREIGN GOVERNMENT BONDS, &c., forwarded to bona fide
investors on application. In addition to the high rate of interest many of the
above are paying, there is now every probability of a great rise in market value.**

P. WATSON, STOCK AND SHARE DEALER,
79, OLD BROAD STREET, LONDON.

(Three doors only from Hercules-passage, entrance to the Stock Exchange.)
Twenty-nine years' experience.

Bankers: The Alliance Bank, and the Union Bank of London.
References given and required (when necessary) in all the principal towns
of the United Kingdom.

MR. T. E. W. THOMAS, SWORN SHARE BROKER,
3, GREAT WINCHESTER STREET BUILDINGS, E.C.
Established 1857.

The following are the latest prices at which business could be done. Quotations
will be given in this list if applications be received not later than Four P.M. on
Friday evenings:—

Buyers.		Sellers.		Buyers.		Sellers.	
Birdseye Creek	£ 3 1/2	£ 3 3/4	South Condurrow	£ 3 1/2	£ 3 3/4		
Carn Brea	50	52 1/2	South Roman Gravels	8s.	10s.		
Dolcoath	45	47	St. Ives Consols	5s.	10s.		
East Lovell	12	13	Tankerville	10	12		
East Pool	9	10	Tincoff	30	32		
Gawton	58	10s.	Trumpet Consols	9 1/2	9 1/2		
Grogwinion	11 1/2	13 1/2	Tyllwyd	12s.	12s.		
Lovell Tin	13 1/2	14 1/2	United Bituminous	15s.	17s. 6d.		
Ladywell	23 1/2	3	West Chiverton	2 1/2	3		
New Dolcoath	5s.	15s.	West Maria	11s.	13s.		
Old Treburgett	14s.	16s.	West Seton	30	35		
Pennerley	1	1 1/2	West Tankerville	1 1/2	1 1/2		
Prince of Wales	9s.	11s.	Wheel Grenville	5	5 1/2		
Roman Gravels	16	17	Wh. Kitty (St. Agnes)	8 1/2	8 1/2		
Rookhope Valley	12s. 6d.	17s. 6d.					

McKENNA & CO. STOCK AND SHARE BROKERS,
5, UNION COURT, OLD BROAD STREET, E.C.

**BARTLETT AND CHAPMAN, FINSBURY SQUARE
BUILDINGS, LONDON, E.C., STOCK AND SHARE DEALERS.**

Before investing, read our publications:—
"Handy Book for Investors" (third edition), price 10s. 6d.
"British Mines and Mining," price 2s. 6d.
"Investors' Directory," price 1s. 6d.
The "Investment and Financial Record," will be sent FREE on application.
Bankers: London and Westminster.

GEORGE LAVINGTON, STOCK AND SHARE BROKER,
ST. MICHAEL'S CHAMBERS, 42, CORNHILL, LONDON, E.C.

**MR. F. CHARTERS, 36, NORTHUMBERLAND STREET,
CHARING CROSS, LONDON, has the FOLLOWING SHARES, free
of commission:**

50 Almada, 15s. 6d. 20 Grogwinion, £2. 10 Roman Gravels, £18.
60 Australian, £2. 50 Gt. West Van, 25s. 6d. 25 Richmond, £8 1/2.
10 Bellavista, £15. 30 Herodfoot, £4. 30 Rookhope, 20s.
30 Bog, 16s. 6d. 20 Hingston Down, £1. 80 Rossa Grande, 5s. 6d.
50 Boscawell, 5s. 9d. 30 Ladywell, £3. 40 So. Rom. Grav., 8s. 6d.
10 Chicago, £5. 50 Last Chance, £1 1/2. 50 St. Dennis Consols, £1
5 Cape Copper, £23. 50 Marke Valley, 7s. 6d. 20 Sweetland, £4.
3 Carn Brea, £30. 70 Malpas, 15s. 10 Silkestone Fall, £4.
60 Cwm Eilan, 2s. 25 Malabar, 14s. 6d. 40 Sierra Buttes, £1 1/2.
3 Dolcoath, £4s. 40 New Dolcoath, 15s. 20 Tyllwyd, 17s.
200 Mid-Moonta, 2s. 12 Tankerville, £9.
25 East Van, £1 1/2. 20 New Pacific, 7s. 6d. 25 Wheel Crebor, £2 1/2.
20 Eberhardt, £3 1/2. 20 Old Treburgett, 14s. 9d. 20 Wheel Tregoss, £1.
10 East Lovell, £12. 25 Plynlimmon, 6s. 9d. 100 Wheel Mary, £2 1/2.
30 Flagstaff, £3. 40 Pennerley, £1 1/2. 10 Wh. Grenville, £5.
50 Frontino, 5s. 9d. 60 Prince of Wales, 9s. 15 Wheel Basset, £10.
70 Gawton, 10s. 60 Parys Mountain, 7s. 6d. 25 Wheel Pevor, £3.
50 Great Yor, 14s. 9d. 80 Port Phillip, 9s. 6d. 100 West Caradon, 1s. 3d.
10 Great Lacey, £11 1/2. 10 W. Chiverton, £2 1/2.

WHEAL MARY TIN MINE.—I have secured the option of 100 shares in this mine,
at 50s. each, £5 paid. These shares ought to be bought at once. The new directors
will make this mine a highly remunerative property.

**MR. THOMAS SPARGO, MINING ENGINEER, STOCK
AND SHARE DEALER,**
QUEEN'S BUILDINGS, QUEEN VICTORIA STREET,
MANSON HOUSE, LONDON, E.C.

**MR. THOMAS SPARGO, the Stock and Share Dealer so long
known as of Gresham House, begs to announce to his clients and friends
that he has REMOVED his OFFICES from Gresham House, to—**

QUEEN'S BUILDINGS, QUEEN VICTORIA STREET, LONDON, E.C.,
Where he continues his business of dealing in all kinds of Stocks and Shares.
Bankers: Imperial Bank (Limited), Lothbury, London, E.C.

TO INVESTORS.
**MR. SPARGO has FOR SALE £5000 in DEBENTURES of
£50 each, in the GENERAL SUBSTRATE and CHEMICAL WORKS
COMPANY (LIMITED), bearing INTEREST at NINE PER CENT., payable
half-yearly, on the 31st of January and the 31 July, coupons attached. No better
investment can be found, as debenture holders have the advantage of sharing the
large profits expected to be realised from the working of the property, irrespective
of the guaranteed interest of 9 per cent.**

Full particulars on application to—
**THOMAS SPARGO, QUEEN'S BUILDINGS, QUEEN VICTORIA STREET,
MANSON HOUSE, LONDON, E.C.**

TO INVESTORS.
**MR. SPARGO has FOR SALE £2000 in DEBENTURE BONDS
of £100 each, redeemable at par in ten equal yearly drawings, interest
coupons payable half-yearly.**

The ASSOCIATION OF LAND FINANCIERS (LIMITED) was established
August 1870, and have divided 10 per cent. per annum, and will continue to do so.
The Drawings take place in the presence of a Notary Public, in the month of
June in each year, which will be duly advertised.
Full particulars on application to T. SPARGO, Queen's-buildings, Queen Victoria-
street, Mansion House-street, London, E.C.

MR. JAMES STOCKER, STOCK AND SHARE DEALER,
2, CROWN COURT, THREEDNEEDLE STREET.

SPECIAL BUSINESS in the following:—
30 Ashton, £2 1/2. 40 Herodfoot. 300 South Aurora, 13s. 6d.
50 Bampfylde. 35 Hingston. 35 So. Carn Brea, £3.
100 Birdseye, £3 11s. 3d. 50 Javali, 7s. 30 Sweetland, £4 1/2.
50 Bog, 20s. 100 Kapunda, 3s. 3d. 40 Thornhill Reef, 16s.
50 Blue Tent (off. wntd.). 25 Last Chance, 42s. 100 Tecoma, 18s.
60 Cathedral. 50 Lovell (Tin), 37s. 6d. 50 Tyllwyd.
90 Cleveland Iron, 1/2 dis. 50 Ladywell, £3. 25 Tankerville, £9 1/2.
75 Chapel House, £4 1/2. 65 Malabar, 14s. 6d. 4 Tincoff, £30.
2 Carn Brea, £19. 200 Malpas, 12s. 6d. 50 Uni. Bituminous, 17s 6
50 Colorado, £3 1/2. 35 New Dolcoath, 12s. 6d. 40 United Mexican.
50 Chontales, 15s. 45 New Quebrada. 6 Van, £2 1/2 1/2
10 Cook's Kitchen, £9 1/2. 70 Old Treburgett, 17s. 70 Van Consols, £4 1/2.
70 Cedar Creek, £24. 70 ditto preference, 15s. 30 W. Tankerville, 35s 6d
60 Clee Hill Colliery, 11s. 40 Pennerley, 27s. 6d. 40 West Caradon, 1s.
60 Central Van, 32s. 9d. 100 Penstruthal, 18s. 10 W. Chiverton, £3 13s 3d
3 Dolcoath, £4 1/2. 50 Perkins Beach, 8s. 6d. 80 West Maria.
10 East Basset, 20s. 50 Port Nigel. 25 W. Esqair Lie, £2 1/2.
40 East Grenville, £9. 100 Price of Wales, 10s. 10 West Basset, £10 1/2.
15 East Van, 26s. 3d. 45 Rosewall Hill, 7s. 35 Wheel Crebor, 41s.
35 Eberhardt, £3 13s. 9d. 50 Rookhope, 21s. 30 Wh. Grenville, £5 1/2.
30 Emma, £2 1/2. 140 Rossa Grande, 3s. 9d. 30 W. Wh. Goriand, 21s.
70 Frontino, 5s. 9d. 25 Richmond, £7 3s. 9d. 10 Wh. Kitty, £8 1/2.
45 Flagstaff, £3 19s. 25 Silkestone Coll., £3 1/2. 35 Wheel Pevor, £3 1/2.
60 Great W. Van, 24s. 60 S. Roman Grav., 12s 6d. 70 I. X. L.
35 Grogwinion, 42s. 25 So. Condurrow, £3 1/2.
20 Great Lacey, £11 1/2. **Bankers**: London and Westminster.

M. R. T. P. T. H. O. M. A. S.,

AGENT FOR THE SALE AND PURCHASE OF MINERAL PROPERTIES,
79, CHEAPSIDE, LONDON, AND PONTERWYD, ABERYSTWYTH,
Is in a POSITION at all times to ADVISE as to the INVESTMENT OF CAPITAL,
and to give the most reliable information as to the present position, prospects, and
value of the Principal Mines of Cornwall and Devon, Shropshire, North and South
Wales, and the Isle of Man, being practically acquainted with them for the last
thirty years.

T. P. T. has just COMPLETED the NEGOTIATION for the PURCHASE of a
very valuable LEAD MINE, which he can confidently recommend as likely in less
than six months to be worth four times the amount of the present price.
Mines inspected and reported upon at home or abroad.

M. R. C. H. A. R. L. E. S. T. H. O. M. A. S.,
MINING AGENT
3, GREAT ST. HELEN'S, LONDON, E.C.

MESSRS. A. W. THOMAS AND CO.,
10, COLEMAN STREET, E.C.,
MINING AGENTS, AND STOCK AND SHARE DEALERS.

Just published.
"Investments and Speculations, 1874."—Post free upon application.

**MESSRS. PENNINGTON AND CO., 3, ROYAL EXCHANGE
BUILDINGS, E.C., STOCK AND SHARE DEALERS, have BU-
INESS in the undermentioned:—**

Birdseye. Tecoma. Sweetland Creek.
Emma. West Wheel Goriand. Malpas.
Flagstaff. Gold Run. Buller.
Kitty (St. Agnes). Pacific. Rica.
Cedar Creek. Malabar. West Esqair Lie.
Parties wishing to purchase or sell in the foregoing are requested to make early
application. **PENNINGTON AND CO., SWORN BROKERS.**

TO INVESTORS.

**MESSRS. PENNINGTON AND CO.'S "MONTHLY RECORD
OF INVESTMENTS,"** published on the first Thursday in each month,
contains an exhaustive Review of the British and Foreign Stock and Share and
Money Markets, &c., with an enumeration of safe investments, paying from 10
to 20 per cent. Price 6d. per copy, or 5s. annually.
PENNINGTON AND CO., 3, Royal Exchange-buildings, E.C.

**MR. THOMAS THOMPSON, JUN., 1, PALMERSTON
BUILDINGS, BISHOPSGATE STREET, LONDON, E.C.**

Some valuable hints as to the purchase of mining shares will be found in Mr.
Thompson's "Investment Circular" for May now ready, post free, price 6d.

DIVIDENDS FROM GOVERNMENT BONDS, 10 per cent.
and upwards. Some have risen 10 per cent.

DIVIDENDS from TELEGRAPH SHARES, 10 to 15 per cent.
DIVIDENDS from SHARES in COLLIERIES, 10 to 15 per cent.
Dividend and other Mines advancing in value recommended.
Consols, Railway, and all other Stocks Bought and Sold.
Price-List, &c., on application.

JAMES HUME, STOCK AND SHARE BROKER,
1, ST. SWITHIN'S LANE, LONDON.
Business in United Bituminous and West Maria and Fortescue.

**MESSRS. ENDEAN AND CO. STOCK AND SHARE
DEALERS, 85, GRACECHURCH STREET, LONDON, E.C.**

Government and every negotiable Stocks dealt in for cash or account. Orders
and telegrams punctually attended to.
We advise immediate application and purchase of the BAMPFYLDE and LLAN-
RWST shares. A rise in price is inevitable.

MESSRS. W. J. TALLENTIRE AND CO.,
STOCK AND SHARE BROKERS,
20, CHANGE ALLEY, CORNHILL, LONDON, E.C., transact business in
Stock Exchange Securities and Mining Shares of every description.

A Selected List of Safe Investments forwarded to intending investors post free
upon application. Fourteen years' experience.

MESSRS. W. A. CARR AND CO.,
STOCK AND SHARE BROKERS,
8, WARFORD COURT, THROGMORTON STREET, E.C.

Consols, Foreign Stocks, Railways, Mining Shares, and every Security quoted in
the London Stock Exchange or Mining Market Bought and Sold.
Speculative accounts opened for the fortnightly settlement.
Scale of Commissions on application.

**MESSRS. A. ENDEAN, FISHER AND CO. STOCK AND SHARE
DEALERS, 32, NEW BROAD STREET, E.C.**

MESSRS. J. TAYLOR AND CO., 86, LONDON WALL, E.C.
and MINING EXCHANGE, SOUTH KING STREET, MANCHESTER.
Business done in all descriptions of Stocks and Shares.

ENGLISH LEAD MINES
AS AN
INVESTMENT.

Copies of Mr. MURCHISON'S "CIRCULAR" (just issued) can be obtained at
his office,—
8, AUSTIN'S, LONDON.

J. A. V. A. L. I. G. O. L. D. M. I. N. E.—
The Advertiser (a private Dealer in Stocks and Shares) is PREPARED to
BUY or SELL any quantity of SHARES in the above MINE.
BUSINESS transacted in every description of STOCKS and SHARES, ac-
cording to the Rules of the Stock Exchange.
Address, "H. H.," MINING JOURNAL Office, 26, Fleet street, London.

THOMAS EDGLEY AND CO.,
**AGENTS for the PURCHASE and SALE of
COLLIERIES, AND OTHER MINERAL PROPERTIES, &c.**
MANSON HOUSE CHAMBERS,
12, QUEEN VICTORIA STREET, LONDON, E.C.

MR. T. PARKYN, ST. AUSTELL, CORNWALL,
is in a position to DEAL WITH respectable parties in CORNISH CHINA-
CLAY PROPERTIES, having secured grants in the best china-clay districts, near
railways to ports; also, HEMATITE IRON ORE PROPERTIES.

T. PARKYN would call especial attention to the New Fowey Tin and Copper
Mines, in St. Blazey district; also to East St. Dennis.
Thirty years practical experience in all its varied operations. Advice given, and
full particulars forwarded on application.
April 21, 1874. **Bankers**: South Cornwall Bank, St. Austell.

**MESSRS. CAMERON AND CO., FINANCIAL AGENTS
AND SHARE BROKERS,**
BRIDGE STREET CHAMBERS, CHESTER.

**MR. J. HODGE, having had thirty-five years' PRACTICAL
MINING, offers his ADVICE to CAPITALISTS, INTENDING PUR-
CHASERS, or SELLERS.**
16, ALBERT ROAD, PLYMOUTH.

GROSVENOR, ENTWISLE, AND CO.
(LATE GROSVENOR AND CO.),
STOCK AND SHARE BROKERS,
88, PORTLAND STREET, MANCHESTER.

750 BLAKE'S PATENT ORE-CRUSHER
NOW IN USE.

For catalogues, apply to—
MR. H. R. MARSDEN, SOHO FOUNDRY, LEEDS
Only maker in the United Kingdom.

MR. JOHN CARTER, MINE SHARE DEALER,
CAMBORNE, CORNWALL, transacts business in every description
shares at close market prices of the day.

Mine shares are now selling very low. A judicious selection will probably amply
repay the outlay within a few months.

FORTY-FIRST ANNUAL REPORT OF THE NATIONAL PROVINCIAL BANK OF ENGLAND, MAY 14th, 1874.

CAPITAL.	
Subscribed capital, £2,550,000.	In 10,000 shares of £100 each, £12 paid. Capital paid-up at 31st Dec., 1873, £1,319,959 Since received 41
	77,500 shares of £20 each, £12 paid. Total..... £1,350,000

RESERVE FUND, £600,000.
NUMBER OF SHAREHOLDERS, 3312.

DIRECTORS.
Right Hon. LORD ERNEST AUGUSTUS CHARLES BRUDENELL
BRUCE, M.P., 7, St. George's place, Hyde Park Corner, S.W.
GEORGE HANBURY FIELD, Esq., 67, Eccleston-square.
JOHN OLIVER HANSON, Esq., 4, Dorset-square.
JOHN KINGSTON, Esq., 6, Crosby-square.
DUNCAN MACDONALD, Esq., Weybank Lodge, Guildford, Surrey.
HENRY PAUL, Esq., 33, Devonshire place, Portland place, W.
ALEXANDER ROBERTSON, Esq., 20, Grafton-street, Berkeley-square, London, and the College, Elgin, N.B.
JOHN STEWART, Esq., 26, Throgmorton-street.
Sir JAMES SIBBALD DAVID SCOTT, Bart., 18, Cornwall Gardens, Queen's Gate.
RICHARD BLANEY WADE, Esq., 13, Seymour-street, Portman-square, W.
ROBERT WIGRAM, Esq., Blackwall Yard.
Hon. ELIOT THOMAS YORKE, 15, Park-street, Grosvenor-square, W.
JOINT GENERAL MANAGERS.
EDWARD ATKINSON, Esq., and WILLIAM HOLT, Esq., Bishopsgate-street, corner of Threadneedle-street, London.
SOLICITOR.
CHARLES NORRIS WILDE, Esq., College Hill, London.

RICHARD BLANEY WADE, Esq., in the chair.

REPORT.

The directors have the pleasure of reporting that the business conducted by the Bank during the past year has been followed by the most satisfactory results. Out of the realised profits they propose to add the sum of £50,000 to the reserve fund, which will then amount to £600,000, and they recommend that in addition to the usual payment of 4 per cent. for the half-year, a bonus of 9 per cent. be paid, making the dividend for the year at the rate of 25 per cent. per annum.

It will be observed that the directors propose to appropriate £500,000 to the fund formed in 1871 for the relief of distressed widows and orphan children of the officers of the establishment, a course which they feel confident will be approved by the proprietors. The amount hitherto annually distributed has been about £120 from the existing fund, but it is confidently expected that the above grant, with the additional interest arising from the balance of the officers' guarantee fund, together with the voluntary contributions now being freely given to it by the officers, will form a sufficient sum annually to relieve such urgent cases of distress as may be brought before the directors.

After these payments, together with the usual bonus of 10 per cent. paid to the officers, the amount of undivided profits carried forward will be £50,004 0s. 7d., of which £45,368 17s. 10d. are derived from the accounts of 1873.

The profits thus proposed to be distributed are due not only to the steady progress of the Bank in public estimation, and its general prosperity at all its branches, but likewise to the fact that the year was extremely favourable to banking operations. The trade of the country was prosperous; the demand for money very brisk; and notwithstanding the prevalence of high rates for money, and the numerous changes in the Bank of England rate, the failures, with few exceptions, were of an unimportant character, showing that trade in general had been conducted on a sound basis.

The highest rate of the Bank of England was 9 per cent., and the lowest 3 per cent., and the average for the year was £4 15s. 9½d., being the highest since 1866. It is remarkable that twenty-four changes occurred in the rate, the greatest number hitherto recorded in any one year.

Among the causes for so many changes may be mentioned the final adjustment of the French war indemnity, financial disturbances in Austria and America, an out-flow of gold on German account, and a deficiency in our harvest, causing larger importations of grain than usual.

The following is the summary of the operations for the year, submitted in the usual form:—

Rest, or undivided profits, at 31st December, 1873, as exhibited at the annual meeting in May, 1873—viz.: £669,400 0 0	
Less bonus declared and paid in cash in July, 1873 104,400 0 0	
	£565,000 0 0
And less amount carried to credit of building fund account 15,000 0 0	
Leaving £550,000 0 0	
Net profits of 1873, after making allowance for bad and doubtful debts, and bonus to officers 397,135 2 9	
Making £947,135 2 9	
Add undivided profits from 1872 45,368 17 10	
Total £992,504 0 7	
Deduct: Dividend on company's stock, paid July, 1873... £54,000 0 0	
Ditto ditto January, 1874... 54,000 0 0	
Bonus of 8 per cent. ditto... 108,000 0 0	
Undivided profits to next year 50,004 0 7	
Leaving £726,500 0 0	
Out of these profits the directors propose to declare, in addition to the foregoing dividends and bonus paid to proprietors as above stated, a further bonus of 9 per cent. in July next, making a dividend of profits in 1873 in all of 25 per cent. upon the paid up capital, free of income tax, amounting to £121,500 0 0	
£605,000 0 0	
Less amount carried to the benevolent fund 5,000 0 0	
Leaving reserve invested in Government securities £500,000 0 0	

Those proprietors who are conversant with the history of the establishment will remember that on four occasions the directors have deemed it expedient to exercise the powers with which they are entrusted, and to issue new shares. Since the last issue there has been an addition to the deposits of nearly £7,000,000; consequently the directors, acting upon the principle by which they have been hitherto guided—viz., of enlarging the security afforded to the public in proportion as the business increases—consider that the time has arrived for a further increase of capital. They have, therefore, decided to make a further issue of 28,125 shares of £20 each, to be offered at 10s. premium, payable by two equal instalments in July next and July, 1875, to the proprietors whose names shall stand upon the share register on the 23rd May instant, in the following proportions—viz:—

1st.—LARGE SHARES.	
One large to be entitled to 1½ new shares.	
Two do. do. 1½ "	
Three do. do. 2½ "	
Four do. do. 3½ "	
Five do. do. 4½ "	
Six do. do. 5½ "	
Seven do. do. 6½ "	
Eight do. do. 7 "	

2nd.—SMALL SHARES.	
One small share to be entitled to ½ new share.	
Two do. do. ½ "	
Three do. do. ¾ "	
Four do. do. 1 "	

Upon the new issue it is intended that £12 should be called up in the following manner:—

1st instalment of £1 and premium of £1	Making £2 to be paid on 15th July next.
2nd instalment of £2	do. on 15th January, 1875.
3rd instalment of £1	do. on 15th July, 1875.
and premium of £5	do. on 15th January, 1876.
4th do. of £2	do. on 15th January, 1876.
5th do. of £2	do. on 15th July, 1876.
6th do. of £2	do. on 15th January, 1877.
7th do. of £2	do. on 15th July, 1877.

Letters of allotment will be issued as soon as possible after the 23d inst., together with a memorandum for the fractional shares. The proprietors must either sell the fractional shares so allotted to them, or purchase such other fractional share or shares as will make one whole share, the memorandum for which must be lodged on or before the 1st of August next, when scrip will be issued for the whole number of new shares given to each proprietor, and the operation be thus completed. Such instalment will only be entitled to the dividend payable in January next, after which date, however, it will carry dividend and bonus. The second and other instalments on shares will be dealt with in a similar manner to the first.

The directors propose to add the whole of the premium which will be received on these shares to the reserve fund, and to invest it as heretofore in Government securities. In the year 1873, the paid-up capital of the bank will amount to £1,887,500, and in 1875 the reserve fund to £581,250, and consequently there is every prospect that before long it will reach the sum of one million.

At the extraordinary meeting about to be held the directors will recommend that this society shall be registered as an unlimited company under the Companies Acts 1862 and 1867. The leading joint stock banks in London, and many in the country, have recently been so registered. The chief advantages will be that, while the principle of unlimited liability will remain unchanged, the liability of the executors of deceased partners and other retiring shareholders will be limited to one year, and that the property belonging to the Bank will be held in its corporate capacity.

The directors also recommend the proprietors at the said meeting to divide each of the original £100 shares in the society, on which £42 has been paid, into two shares of £50 each, on each of which £21 shall be taken to have been paid up, a measure which they believe will have the effect of more nearly equalising the proportionate value of the two classes of shares.

The following directors go out of office by rotation, but being eligible for re-election offer themselves accordingly:—

Right Hon. Lord ERNEST AUGUSTUS CHARLES B. BRUCE, M.P.
HENRY PAUL, Esq.
RICHARD BLANEY WADE, Esq.

NATIONAL PROVINCIAL BANK OF ENGLAND.

31ST DECEMBER, 1873.	
Dr.	LIABILITIES.
To paid-up capital £1,349,959 0 0	
Amount due by the Bank on deposits, &c. 21,822,175 19 3	
Acceptances 547,313 0 2	
Reserve fund, 1st January, 1873 £550,000 0 0	
Addition, 31st December, 1873 50,000 0 0 = 600,000 0 0	
Profit and loss balance 176,504 0 7	
Total £24,495,952 0 0	

ASSETS.	
By cash in hand—at Bank of England and Branches, call and short notices £4,298,793 7 3	
Government Securities 2,933,943 5 0	
Indian Government and other securities, debentures, &c. 2,281,597 9 9	
Bills discounted, loans, &c. 14,569,189 1 0	
Freehold premises, &c., in London and country £528,561 3 3	
Total amount 111,103 6 3 = 412,457 17 0	
Less, at credit of building fund £24,495,952 0 0	

This above report having been read—it was.
Resolved,—That the same be adopted and printed for the use of the proprietors.
Resolved,—That the Right Hon. Lord Ernest Augustus Charles B. Bruce, M.P., Henry Paul, Esq., and Richard Blaney Wade, Esq., be re-elected directors of the company.
Resolved,—That considering the great increase which has taken place in the business of the Bank, and the profits of the shareholders since the general meeting in 1870 fixed the annual remuneration of the directors at £3000, the time has fully arrived for reconsidering the propriety of increasing such remuneration, and this meeting is of opinion that it should be raised to the sum of £10,000. (This resolution, in conformity with the Deed of Settlement, will be submitted for confirmation to an extraordinary general meeting, which will be summoned for the 15th June, 1874.)
Resolved,—That the best thanks of the proprietors be presented to the directors for their very successful management of the affairs of the company.
Resolved,—That the best thanks of the proprietors be given to Edward Atkinson, Esq., and William Holt, Esq., the general managers, and to the branch managers and other officers of the company, for their efficient services.
Resolved,—That the best thanks of the meeting be presented to the Chairman for his able conduct in the chair.
Extracted from the minutes by E. ATKINSON, } Joint Managers.
W. HOLT, }

Extraordinary meeting, held in pursuance of notice given in the "London Gazette" of April 21, 1874.

Resolved,—That this society be registered as an unlimited company under the Companies Acts, 1862 and 1867, and that the directors be, and they are hereby, authorised (when and as they may deem it judicious) to do all acts, matters, and things necessary or proper for procuring this society to be so registered, or conducive to that object.

Resolved,—That each of the original £100 shares in this society, on which £42 has been paid up, be divided into two £50 shares, on each of which £21 shall be taken to have been paid up, and that Clause 3 and every other clause in the Deed of Settlement relative to the original capital of the society be altered so that in future the original capital of the society shall consist of 20,000 shares £50 each, instead of 10,000 shares of £100 each.

Resolved,—That for every two of such £50 shares as aforesaid which shall be held by one proprietor, such proprietor shall be considered a proprietor of one original share of £100, and one such share only, with respect to those qualifications, rights, and privileges which by the Deed of Settlement are required and given to the proprietors of original shares of £100 each, and are dependent on a specified number of those shares.

Extracted from the minutes by E. ATKINSON, } Joint Managers.
W. HOLT, }

ABRIDGED PROSPECTUS. ISSUE OF 750 GUARANTEED TEN PER CENT. FIRST MORTGAGE DEBENTURES OF £20 EACH OF THE BLENCOWE CONSOLS TIN MINING COMPANY (LIMITED).

Capital £50,000, in 5000 Shares of £10 each.
Fully subscribed capital £32,010.
Price of issue—£20 per Debenture.
The first payment of interest will be made on the 30th August, 1874.
The interest for three years is guaranteed to the holders of the Debentures by an investment in Consols to be made in the names of two trustees.
The debentures are redeemable at the expiration of three years from the 31st May, 1874, or any time during that period, on the directors giving three months' notice.

THE DIRECTORS OF THE BLENCOWE CONSOLS TIN MINING COMPANY (LIMITED) ARE PREPARED TO RECEIVE APPLICATIONS FOR THESE DEBENTURES OF £20 EACH, PAYABLE £10 ON APPLICATION AND £10 ON ALLIANCE.

The holders of these debentures will have the privilege during their currency of exchanging their debentures for the shares of the company at par.

The company has purchased certain properties situate in the parish of St. Stephen's, near St. Austell, Cornwall, within one mile and a half of the Grand-powder Road Railway Station, and is now working the run of rich tin lodes which have been proved to exist therein.

The money raised by these debentures is to enable the directors to further develop the property, and to increase the present out-turn.

TRUSTEES FOR THE DEBENTURE HOLDERS.
NATHANIEL G. LAMBERT, Esq., M.P.
Major-General ALBERT FYTCH, C.S.I.

Forms of application can be obtained at the offices of the company, 16, Great Winchester-street, London.

SECRETARY—WILLIAM BATTYE.

THE PORT NIGEL LEAD COMPANY (LIMITED).

Incorporated under the Companies Acts, 1862 and 1867.
Capital £20,000, in 10,000 shares of £2 each.
Deposit, £1 on application, and £1 on allotment.

DIRECTORS.
THOMAS GUNDRY, Esq., 75, Old Broad-street, and Torfey, Cornwall.
M. CROWE, Esq., Royal Colonade, Bristol.
J. E. C. MATHEWS, Esq., 141, Harley-street, Cavendish-square, London.
E. J. CHARTER, Esq., 30, West Cromwell-road, South Kensington.

BANKERS.
THE ALLIANCE BANK (Limited), Bartholomew-lane, London, E.C.
AUDITOR.
T. S. EVANS, Esq. (Messrs. Evans and Bouchard), 77, King William-street, E.C.
BROKERS.
Messrs. LINDO, KING, AND CO., 5, Angel-court, Throgmorton-street, E.C., and the Stock Exchange.
W. WARD, Esq., 75, Old Broad-street, E.C., and the Stock Exchange.

SOLICITOR.
W. UPWARD, Esq., 19, Finsbury-circus, E.C.
SECRETARY (pro tem.)
Mr. SYDNEY W. JACKSON.
OFFICES.
ABCHURCH CHAMBERS, ABCHURCH YARD, LONDON, E.C.

PROSPECTUS.
This company has been formed to purchase and work extensive mineral rights, situated in the parish of Llanengan, in the county of Carnarvon, together with all the plant, machinery, and materials now on the property, which is in the immediate vicinity of the Tan-y-Bwlch Mine, and containing the same rich and productive lode. The latter mine is daily opening out very large quantities of lead ore.

The importance of these discoveries can scarcely be overestimated, and it is confidently believed that in the event of this company cutting the lode as rich as in the adjacent mine (the Tan-y-Bwlch), the directors will be in a position to make handsome returns to the shareholders.

A portion of the property, comprising the valuable veins and minerals under Glan-y-Morfa, together with certain cottages and land in Llanengan, is freehold, and the remainder is held under a lease for 21 years, subject to the moderate royalty of 1-14th.

The lode is large, continuous, and strong, embedded in highly mineralised ground, and has yielded from 1 to 8 tons of lead per acre.

This mine has not to go through the tedious and costly process of being opened up; this work is already done, and its productiveness has been proved at a considerable expenditure of time and money, over £8000 having been laid out during the last three years in developing the property, and preparing it for regular and extensive working.

The engine shaft has been sunk 44 fms. from adit, at which depth a level has been commenced to intersect the lode, which, when effected, will doubtless further open up rich deposits of lead.

The 24 ft. level has already been driven east of the shaft 17 fms., and the lode at this point is yielding 1½ to 2 tons of lead per fathom.

A great deal of work has also been done at surface, engine and crusher houses, offices, material house, and smiths' and carpenters' shops having been built, and dressing floors made.

There are also on the property a double horizontal steam engine with two boilers, pit-work, crusher, pumping and winding gear, tramway, capstan and shears, with a large quantity of mining and other tools, iron, timber, and other useful materials, all which are included in the purchase.

The only contract entered into on behalf of the company is a contract dated the 30th day of April, 1874, and made between Richard Mitchell of the one part, and Sydney William Jackson for and on behalf of the company of the other part, a copy of said contract, and of the Memorandum and Articles of Association may be seen at the offices of the company, or at the offices of the solicitor.

Prospectuses and forms of application can be obtained from the bankers, brokers,

solicitor, and at the offices of the company, Abchurch Chambers, Abchurch-yard, London, E.C.
Should no allotment be made, the deposits will be returned in full.

THE PORT NIGEL LEAD COMPANY (LIMITED).

Notice is hereby given, that the LIST OF APPLICATIONS FOR SHARES in the above will CLOSE on THURSDAY, the 21st inst., for LONDON, and on FRIDAY, the 22d inst., for the COUNTRY.

By Order, SYDNEY W. JACKSON, Secretary (pro tem.)
Abchurch Chambers, Abchurch-yard, London, E.C., May 9th, 1874.

THE BOULDER VALLEY COLLIERIES COMPANY OF COLORADO (LIMITED).

NO APPLICATION FOR DEBENTURE BONDS will be RECEIVED after SATURDAY, the 23rd instant, for LONDON, and MONDAY, the 25th, for the COUNTRY.

ISSUE OF 3000 CONVERTIBLE TEN PER CENT. FIRST MORTGAGE DEBENTURE BONDS OF £50 EACH, REDEEMABLE BY ANNUAL DRAWINGS AT £10 PREMIUM ON EACH DEBENTURE.

Price of issue—Par, or £50 for each Debenture Bond, payable as follows:—
£10 on each Debenture Bond, payable on application.
£10 " " " " on allotment.
£30 " " " " 15 days after allotment.
The Bonds are transferable from hand to hand, free of stamp duty, to be issued by the company's bankers in London.

As the probable future earnings of this company will, in the opinion of the directors, be very large, it has been determined to give the debenture holders the privilege of exchanging their Bonds at any time within three years for the same amount in shares, thus giving them the advantage of participating in the profits.

These Debenture Bonds will form a first charge upon the property of

THE BOULDER VALLEY COLLIERIES COMPANY OF COLORADO (LIMITED).

TRUSTEES FOR DEBENTURE HOLDERS.
The Honourable ASHLEY G. J. PONSONBY, Director of the Submarine Telegraph Company, 9, Prince's Gardens, S.W., and Heatherfield, Ascot, Berks.

J. N. SEARS, Esq., Shipowner and Director of the Java Steamship Company, 17, Fenchurch-street, London, Southampton, and Liverpool.

Share capital £200,000.

DIRECTORS.
The Honourable ASHLEY G. J. PONSONBY, Director of the Submarine Telegraph Company, 9, Prince's Gardens, S.W., and Heatherfield, Ascot, Berks, Chairman.

J. N. SEARS, Esq., Shipowner and Director of the Java Steamship Company, 17, Fenchurch-street, London, Southampton, and Liverpool.

WILLIAM JONES, Esq., Director of the City and County Bank (Limited) Abchurch-lane, Lombard-street, London.

W. LYND MARTIN, Esq., Commander Royal Navy, 6, Marine Parade, Dover.

WILLIAM SLATER, Esq., Banker, Carlisle and Bishopsgate Without, London.

EDWARD REED, Esq., 36, Finsbury-circus and Holland Villas-road, Kensington (who will not take his seat at the Board until after the completion of the purchase).

AMERICAN COMMITTEE OF ADVICE.

Hon. JEROME B. CHAFFEE, Delegate for Colorado to the Congress of the United States, and President First National Bank, Denver, Colorado.

DAVID H. MOFFATT, Esq., Cashier of the First National Bank and Treasurer Boulder Valley Railroad Company, Denver, Colorado.

BANKERS.
Messrs. BROWN, JANSON & Co., Abchurch-lane, Lombard-street, London, E.C.
THE FIRST NATIONAL BANK, Denver, Colorado, U.S., Depository of the United States Government.

SOLICITOR.
E. F. BUTTEMER HARSTON, Esq., Gresham Buildings, Guildhall, London.

BROKERS.
Messrs. BAINBRIDGE and GRAHAME, 4, Austinfriars, London, E.C.

SECRETARY.
Mr. WILLIAM BATTYE.

OFFICES.
16, GREAT WINCHESTER STREET, LONDON, E.C.

ABRIDGED PROSPECTUS.

The trustees for debentures of the Boulder Valley Collieries Company of Colorado (Limited) are prepared to receive application for 3000 Ten per Cent. Debenture Bonds of £50 each, at par, payable as follows:—£10 on application, £10 on allotment, £30 fifteen days after allotment.

The bonds, with coupons attached, bearing interest at the rate of 10 per cent. per annum, payable half-yearly, on the 1st of May and 1st of November in each year, at the company's bankers in London. The first coupon will be payable on the 1st of November, 1874.

The debenture holders will have the privilege of electing two directors. The trustees have executed a declaration, which may be seen at the solicitor's offices, of the trusts upon which the amount subscribed will be held by them. By the terms of the trusts, the trustees will hold the amounts upon trust to acquire the property, which will, when acquired, be vested in the trustees as a collateral security for the payment of the debentures and interest. A description of the property, based upon the reports of Prof. Chas. S. Richardson and Capt. George R. Mitchell, mining engineers, will be found below.

A sum equal to not less than 1 per cent. on the entire issue of debenture bonds will be set aside in each year to provide for the annual drawings for payment of the same, together with the premiums thereon of £10 each bond. The first drawing will take place on the 5th of May, 1875.

Returns from the mine for October and November last show the actual profit made to be \$1 (4s.) per ton, and the output on last reports about 400 tons daily. On this basis the profit is much more than is required to pay interest, and provide the necessary amount for annual redemption and premium on debenture bonds.

The working plant being large, only a small further capital is required for extended workings.

It will be seen that the profit upon an output of 500 tons daily (calculating 300 working days to the year) will be, annually \$30,000.

being nearly double the sum required to meet the annual interest and sinking fund of the debentures.

From the expanding demand for coal, consequent upon the rapid increase of population and industrial needs, it is believed that this result will be attained during the present year, and the directors confidently anticipate that an output of 1000 tons per day may be expected next year, which, rateably, would give an annual income of £80,000.

The option given to debenture holders, to exchange debentures for fully paid shares at any time within three years, enables them to participate in the expected future increase of income of the company.

DESCRIPTION OF THE PROPERTY.

The following description of the property which is to form the security for the debenture bonds, is based on the reports of Prof. Richardson, Capt. Mitchell, and recent accounts from the mine and Colorado territorial officials. It consists of the celebrated collieries and estates owned by the Colorado Coal Company, and the St. Louis and Denver Land and Mining Company, situate in Weld county, Colorado, U.S.A., together with all the dwelling-houses and other buildings, coal cars, rails, and the entire mining plant, mules, and working equipments now upon the said properties, as described in the contract of the sale. The extent of this splendid property is described by Capt. Mitchell as "nearly equal to six and a half square miles," and by Prof. Richardson as 4050 acres. There are about 30 acres of this in full working, with new workings continually going on.

Prof. Richardson's report concludes thus:—"This property presents to the capitalist a field for either speculation or permanent investment of wide range. In the first instance, it has paid greater dividends than any other colliery in the Territory. Secondly, it is capable of doubling or trebling its returns. I have shown that it pays 4½ per cent. on the operative cost. With certain changes that can be introduced this point can be brought up to 70 per cent., or even more." &c.

The valuation of about 1200 acres of one seam of coal alone now working is placed by Prof. Richardson at \$1,450,440, or nearly £300,000. Capt. Mitchell estimates the entire seam at \$2,823,360, or over £560,000.

Upon the property is the town of Erie (which has given a distinctive name to the coal produced from these collieries, already numbering about 100 buildings, with an excellent hotel, several stores, boarding-houses, &c., with a new school-house in the course of erection.

The collieries have been in active and most profitable operation for five years past. About a quarter of a million tons have been already raised and sold from the seam now being worked.

THE DENVER AND BOULDER VALLEY RAILROAD
Runs through the property, bringing it into direct communication with Denver City (the capital of Colorado), 33 miles distant.

such unprecedented strides is beyond all doubt. The official returns of Colorado show that between 1870 and 1873 the population nearly quadrupled, and the value of the property more than doubled in the same time.

Professor Richardson and Captain Mitchell's reports and valuations, together with the schedule of the property attached to the estate, plans, and also certificates from the Governor of Colorado, from the United States Surveyor-General, and from the Hon. G. T. Clark, United States Territorial Treasurer, W. H. Lessig, from the Hon. G. T. Clark, Superintendent of the Boulder Valley, and from J. G. Jones, Esq., Superintendent of the Colorado and other Coal Company, &c., relating to the value and importance of the coaleries and other portions of the estates, and copies of the Memorandum and Articles of Association of the company can be seen at the offices of the company, and of the solicitor.

THE CAPITAL OF THE COMPANY consists of—

32,000 shares of £5 each, of which are to be reserved for exchange debentures, at the option of the debenture holders, such option to be exercisable at any time within three years from the incorporation of the company	£160,000
20,000 fully paid shares of £5 each, to be allotted to vendor in part payment of the purchase-money, all dividends on these shares that may be declared during the period of three years from the incorporation shall accrue during that period to be the property of the company of the company (30th April, 1874) to be the property of the company, and applied in or towards redemption of debentures	100,000
52,000	£260,000
The price agreed to be paid to the vendor for the purchase of the property is £230,000—	
Cash, part proceeds of debenture bonds	£130,000
20,000 deferred shares of £5 each, as above	100,000
Total purchase money	230,000
Balance	30,000
	£260,000

Power is reserved to make no allotment, and return amounts subscribed. Where no allotment is made, the deposit will be returned without deduction, and should a less number of bonds be allotted than applied for, the surplus deposit will be applied towards payment of the amount due on allotment.

Prospectuses and forms of application may be obtained of the Secretary, at the offices of the company; and of the Bankers; and of all the principal London and Provincial Stockbrokers.

THE BOULDER VALLEY COALIERIES COMPANY OF COLORADO (LIMITED).

The APPLICATIONS FOR DEBENTURE BONDS will CLOSE on SATURDAY, the 24th inst., for LONDON, and MONDAY, the 25th, for the COUNTRY. Applications must be made and transmitted, with a remittance of £10 in respect of each bond, to the Bankers of the Trustees, Messrs. BROWN, JANSON, and CO., 32, Abchurch-lane, Lombard-street, London, E.C.

NORTHAMPTONSHIRE IRON ORE.

NELL BRIDGE IRON ORE COMPANY (LIMITED).

IN THE PARISH OF KING'S SUTTON, COUNTY OF NORTHAMPTON.

M. H. H. THOMPSON, of 9, Tokenhouse-yard, London, E.C., is AUTHORIZED TO RECEIVE SUBSCRIPTIONS at par for 500 Shares, of £5 each, in the **NELL BRIDGE IRON ORE COMPANY (LIMITED)**, which has just acquired a valuable mine upon highly favourable terms. The company pays just the net amount expended for completing purchase, the transferor to receive £2000 bonus when the company has earned a dividend of 20 per cent.

This mine is situated on the Great Western Railway, about four miles from Banbury, on the line to Oxford, and possesses the advantage of a tramway to railway, with siding thereat, capable of standing 50 trucks.

The sum of £255 was paid to the Great Western Company for constructing this siding; £700 expended for viaduct, shops, and tunnel under road, and upwards of £1500 laid out in earthworks, while the plant, exclusive of the siding, is now estimated at worth £800 for taking away to sell.

The ore is purely colitic, which is increasing in demand for mixing with other, especially refractory, ores. It will flux itself. The average yield is 30 per cent. metallic iron, and 33 per cent. lime.

The strata are 5 ft. to 6 ft. deep, and as the earth or overburden is not more than 2 ft. the greatest depth to bottom of ore is only about 7 ft. to 8 ft. from surface.

The ore is easily worked, and requires only picks and shovels. Everything necessary for working extensively is in place and in perfect order.

The area is 101 acres. Lease 21 years, from August, 1869. The annual rental, which merges in the royalty of 5d. per ton of 2240 cwt. of 120 lbs. to the cwt. is £250 for the next three years, and £500 for the remainder of term. For land used for the purposes of the company a surface rent of £5 per acre per annum is payable. Tramway lease same period as for the mine. Rent £50, also merging into a royalty of 1d. (one penny) per ton of 2400 lbs. up to 24,000 tons, and ½d. (one halfpenny) per ton in excess.

Occupation rent, £10 per annum.

Great Western Railway, £10 per annum.

OUTLAY.

Railway rate to South Staffordshire	2s. 10d. to 3s. 2d. per ton.
Royalties, 5d. and 1d.	0 6 "
Getting and putting into trucks, including horse hire, poor rates, &c.	1 1 "
Truck hire	0 9 "
Commission on sale of ore and management	0 6 "
Total	6s. 0d. per ton.
6s. (six shillings) per ton on 1000 tons only per week, and taking 45 weeks per annum, to allow amply for wet weather and holidays	£13,500 per annum.
Checking weights, 10s. per week	26 "
Surface rent	6 "
Occupation rent	10 "
Great Western Railway rent	10 "
Total	£13,552 per annum.

RECEIPTS.

Sale of 1000 tons per week at only 6s. 10d. per ton and taking 45 weeks only	£15,372
Less discount of 2½ per cent. for cash at a month, less railway rate	180 — £15,192
Profit per annum	£1,840
London expenses	250
Total	£1,590

Or upwards of 54 per cent. upon the capital now issued, and 27 per cent. on the entire capital of £5000. This is calculating a sale of only 1000 tons per week, at 6s. 10d. per ton; but the directors are of opinion that the sales will average a much higher price, and that they will be able to largely increase the quantity.

SCHEDULE OF PLANT TO BELONG TO THE COMPANY.

25 railway trucks of 1 ton each.
40 sleepers laid on tramway.
100 sleepers in stock.
556 ft. of rails laid on tramway.
50 ft. of rails in stock.
300 doz. nails for tramway.
Picks, shovels, rakes, bars, wheelbarrows, planks, grease, tar, &c.
Weighbridge (4 tons) average.

The above is independent of the siding at railway.

Mr. CHARLES CHICK, of Roade, Northampton, undertakes the management and general superintendence of the mine, including travelling expenses and commission on the sales of ore, for 6d. per ton on the ore sold.

The remuneration of the directors is left to be fixed by the shareholders.

Intending shareholders will be furnished with an order to visit and inspect the mine, which can be reached from London in 2½ hours; and samples of the ore may be seen at the offices of the company, 40, Finsbury-circus, E.C., where prospectuses and forms of application for shares may be obtained; also of H. H. Thompson, Esq., Broker, 9, Tokenhouse-yard, London, E.C.; and of H. J. Gordon, Esq., Solicitor, 103, Fenchurch-street, London, E.C.

PERPETUAL MOTION SUPERSEDED.—An invention, which promises entirely to eclipse the spiritualistic lever of Mr. W. Crookes, F.R.S., as a source of motive power, is now being introduced in the United States by a Philadelphian—**Mr. John W. Keely**—who claims to be able to produce, without heat, electricity, galvanism, magnetism, or chemicals a cold vapour, which will yield a pressure of 10,000 lbs. per square inch. Reporting upon the invention, Mr. Chas. H. Haswell, civil and marine engineer, and formerly Engineer-in-Chief, United States Navy, certifies that Mr. Keely developed a cold vapour of a density that enabled it, when admitted to a cylinder having a piston 1½-in. in diameter, to raise a weight of 150 lbs. suspended from a compound lever, connected as a knife-edge or rotating joint, was fully equal to an energy of 7800 lbs. per square inch. The inventor alleges that, by the introduction within the apparatus of a very small volume of water, he can generate a vapour having an expansive energy of from 1 to 20,000 lbs. per square inch in the brief period of a few seconds, the only obstacle to the generation of this vapour in great volume being the capacity of materials to retain it without rupture.

COMPRESSING MACHINERY.—**Mr. R. S. WALKER, of Gresham House, Old Broad-street,** has patented some improvements in machinery for compressing and forcing into blocks peat, artificial fuel, and other materials. The provisional specification describes a machine which consists of a horizontal oblong hollow body of cast iron, of which each end is divided into a nest of oblong moulds open at both ends, but the inner ends sharpened into cutting edges; between these two nests is a space open at the top, over which is a hopper which feeds in the materials to be operated upon; in the space between the moulds is a piston or ram, which makes its stroke from the cutting edges of one nest of moulds to the cutting edges of the other nest, behind which piston or ram the materials fall of their own gravity, to be driven into the moulds by the returning stroke.

NEW FUEL.—**Mr. L. J. MARTIN, of Paris,** has patented some improvements in the manufacture of artificial fuel, and in the production of gas for illuminating and heating purposes. The improvements relate to the production of gas for illuminating and heating purposes from lignite, peat, or dried wood saturated with a hydrocarbon, the resulting product forming a fuel possessing great calorific power and density, also to the production of charcoal from the residue of the manufacture of gas from such matters.

LONDON GENERAL OMNIBUS COMPANY.—Traffic receipts for the week ending May 10, 1874, 18s. 1d.

Registration of New Companies.

The following joint-stock companies have been duly registered:—

WIGGINTON HALL COLLIERY COMPANY (Limited).—Capital, 30,000l., in 50,000 shares. To take over a colliery near St. Martin's, Oswestry. The subscribers (who take one share each) are—W. Joy, 36, Coleman-street; A. C. Cunningham, Edgeware-road; W. Gallop, Oxford-street; J. Vallon, Portmadoe; C. Dacey, 49, Leadenhall-street; Alfred Hayles, 58, Coleman-street; W. F. Dell, Millman-street, Bedford-row.

EAST RHUW GOCH SLATE QUARRY COMPANY (Limited).—Capital 50,000l., in 50,000 shares. To acquire a quarry in the parish of Dolwyddelan, Carnarvon. The subscribers (who take one share each) are—J. O. Surtees, Chertsey, 100, T. J. Fallon, 1, Arundel-gardens, W. 500; F. Bigg, Bridge-street, Blackfriars, 25; E. N. Hudson, the Crescent, 1, Minories, 50; D. W. Douling, St. George's-square, 100; G. Aitken, Crescent, Minories, 10.

MARATIME AND GENERAL BANK (Limited).—Capital 50,000l., in 20,000 "A" shares of 10l. and 6000 "B" shares of 5l. each. The subscribers to this company are—J. Sunley, 8, London-street, 100; J. O. Surtees, Chertsey, 100; T. J. Fallon, 1, Arundel-gardens, W. 500; F. Bigg, Bridge-street, Blackfriars, 25; E. N. Hudson, the Crescent, 1, Minories, 50; D. W. Douling, St. George's-square, 100; G. Aitken, Crescent, Minories, 10.

GILBERT AND CHAUDIERE GOLD FIELDS COMPANY OF CANADA (Limited).—Capital 125,000l., in 250,000 shares. To take over the business of the Gilbert and Chaudiere Gold Fields and Mining Company of Canada (Limited). The subscribers (who take one share each) are—W. H. Spratt, Walbrook-buildings; R. Town, Ormond-terrace, Regent's Park; E. Applegarth, Palmerston-buildings; F. J. Goli, Preston, Sussex; C. Cadogan, 17, Abchurch-lane; J. Berthel, 84, Lombard-street; A. Griffith, 17, Abchurch-lane.

LIVESTOCK INSURANCE COMPANY OF GREAT BRITAIN (Limited).—Capital 100,000l., in 10,000 shares. To carry on business as insurers of live stock. The subscribers (who take one share each) are—R. T. Coupland, 30, Moorgate-street; T. Crisp, 6, Old Jewry; C. L. Atterbury, Southall House, Biddford; C. W. Gilman, Norwich; T. Duckham, Bayham Court, Ross; W. Smith, Norwich; F. Ormandy, Broadbury Villas, Kilburn.

PROPERTY ASSOCIATION (Limited).—Capital 50,000l., in 10,000 shares. The subscribers (who take one share each) are—C. Parker, 78, Coleman-street; W. Sharpe, Pembroke-square, Kensington; J. R. Ross, Hastings; J. Fairbairn, Fenchurch-street; R. T. King, Carlton Grove, Peckham; M. Gregory, Kings Arms-yard; H. N. Barnes, Mounting, Essex; A. Heald, 32, Moorgate-street.

SILVER RIDGE LEAD MINING COMPANY (Limited).—Capital 6000l., in 10,000 shares. For mining in Kirendbrightshire. The subscribers (who take one share each) are—Alfred Twigg, Selby; Thomas Field, Crown-court, E.C.; J. Ash, Rose Bank, Manchester; Richard Williams, Gunners, Cornwall; F. W. Reisten, Grove-street, Liverpool; F. Heald, Eastham, Cheshire; V. W. Jones, Liverpool.

MESSRS. JOHN WAGSTAFF AND COMPANY (Limited).—Capital 60,000l., in 50,000 shares. This is a Lancashire cotton-spinning business.

UNION FINANCE COMPANY (Limited).—Capital 100,000l., in 10,000 shares. This is a Bristol Finance Company. The subscribers are—S. Green, Clifton, Bristol, 100; W. Suddler, Woodfield, Cleveland, 100; H. T. Nash, Portland, 100; H. Chapman, Clevedon, 250; E. F. Portledge, Bristol, 100; F. Castle, Clifton, 100; S. Joyce, Bristol, 100.

JOHN NAYLOR AND COMPANY (Limited).—Capital 24,960l., in 12,000 shares. To take over the Whiting Moor and Westgate Moor Collieries, near Wakefield, Yorkshire. The subscribers are—J. Naylor, Horbury, 200; Thomas Westwood, Ossett, 200; R. Westwood, Ossett, 210; J. Spaight, Ossett, 100; J. Austin, Dewbury, 50; R. Smith, Ossett, 50; B. Bretherton, Ossett, 10.

MARATIME AND GENERAL BANK (Limited).—Capital 50,000l., in 20,000 "A" shares of 10l. and 6000 "B" shares of 5l. each. To carry on the general business of a banking company. The subscribers are—J. Sunley, 8, London-street, 100; J. O. Surtees, Chertsey, 100; T. J. Fallon, 1, Arundel-gardens, W. 500; F. Bigg, Bridge-street, Blackfriars, 25; E. N. Hudson, the Crescent, Minories, 50; D. W. Douling, 27, St. George's-square, 100; G. Aitken, the Crescent, Minories, 10.

UNIVERSAL LAND AND ESTATE COMPANY (Limited).—Capital 25,000l., in 50,000 shares.

MADDEN CLOUGH SPINNING COMPANY (Limited).—Capital 30,000l., in 50,000 shares. To take over cotton spinning business in Lancashire.

CLARIDGE AND CO. (Limited).—Capital 25,000l., in 10,000 shares. To take over the Phoenix Foundry and Engineering Works at Bilston.

THE COAL CONSUMERS' ASSOCIATION.

The fact of the second ordinary general meeting of this company, held under the able presidency of Lieut.-Col. TREVENEN J. HOLLAND, C.B., at the Cannon-street Hotel, on Thursday, was of more than four hours' duration renders it impracticable to devote the necessary space in the *Mining Journal* for a detailed report of the proceedings, more especially as the concern scarcely comes within the category of an ordinary mining or trading company. The directors stated in the report that they have endeavoured to make a judicious outlay of the capital of the association, and are pleased to be able to inform the shareholders that all their investments in collieries have proved so far satisfactory that the present value of these collieries, as shown in the circular, and very lately assessed by practical engineers, is now considerably in excess of the price paid for them, notwithstanding the general depreciation in the value of colliery property throughout the United Kingdom. The directors could not have acquired these properties on the advantageous terms they did had they been fully developed at the time of purchase. It is, therefore, become necessary to expend a considerable amount of the capital of the association in increasing the output, which is yet far from sufficient.

The whole of the first issue of 50,000 shares having been taken up, the directors, on Oct. 1 last, made a second issue at 5 per cent. premium. As each share, however, is allotted, a further obligation to deliver coal is entailed, thus hampering arrangements for developing the collieries and their output. Under these circumstances, it has been thought advisable by the directors, under the powers vested in them by the Articles of Association, to borrow 50,000l. by the issue of mortgage debentures, forming a first charge upon the assets of the association. These debentures are being daily applied for and allotted as applications are received, and the directors feel confident that when they are all allotted ample funds will be available, not only to enter into possession of the Silkstone Main Colliery, but to fully develop all the other collieries belonging to the association, thereby considerably increasing the output, placing a much larger quantity of coal at disposal for prompt delivery on demand; and, as the cost of management will not be increased, enabling the directors to reduce the price of coal to shareholders. The profit and loss account showed a profit of 6452l. 10s. 9d. on the first five months' operations. It will be a matter of consideration for the shareholders whether it is more advisable for them to receive their coal at actual cost price hereafter, till profits can be realised by the sale of surplus coal to the public, or with an extra charge upon each ton, to be refunded at the end of the year in the shape of a dividend, as originally proposed. Since the business of the association was commenced upwards of 35,000 tons of coal have been delivered to the shareholders: 44 depots have been opened, in addition to which coal has been supplied at 188 stations by the truck load. It has been impossible to control all these depots and stations, and to meet the requirements of the families of more than 7000 shareholders and their many friends (to whom they have given coal tickets) without occasional delay and cause of complaint. Unforeseen circumstances prevented the delivery being as regular as could be desired. A rise in the railway rates and truck hire of 2s. 5d. per ton increased the aggregate so much that it became necessary, on Jan. 1 last, to advance the price of coal to 1s. per ton to the shareholders on the north of the Thames, and 2s. per ton to those on the south of the Thames, to cover all expenses incurred in the delivery of coal to metropolitan consumers at the house door. The directors, however, anticipate that this increase in price is only temporary, and that when they have capital at their disposal, unfettered by the obligation to deliver coal, they will be able to materially increase the output at the several collieries, and to bring such a large supply of coal from Silkstone Main that they will shortly be able to reduce the price of coal to shareholders.

The reception and adoption of the report and accounts was proposed by the CHAIRMAN in an eloquent address, the most important statements in which, considered from a business point of view, was that experience had taught them that it was a mistake to offer to supply a ton of coal for each 10l. share, it should have been a ton for each 20l. share, and that it would have been better to have acquired one or two going collieries instead of several undeveloped ones. It was now, perhaps, too late to remedy this error, but when the debentures were subscribed they might be able to dispose of some of those they had, and thus create a reserve fund. He explained that the only way in which the 10 per cent. dividend could be paid was by charging the shareholders 2s. per ton more for their coal. As to the complaints of the quality and price of the coal, he admitted that in many cases there had been clear cause of complaint, the supplies had not been regular, and the quality had not been good, but in commencing an enterprise of this class it was next to impossible to overcome all of the many obstacles thrown in their way. He thought, however, that in some cases the complaint originated with servants who objected together to the co-operative principle, which supplied at low prices, and gave no perquisites. It was best not to judge the society by its first few months' operations.

It was ultimately arranged that the meeting should be adjourned for six months, so as to permit the issue of the committee of investigation and directors' revised reports, with accounts to the end of October, when the financial year terminates.

ARTIFICIAL FUEL.—**Mr. A. M. CLARK, of Chancery-lane,** has patented (for E. F. Loiseau, of Manch Chancery, Pennsylvania) an improved apparatus and process for the manufacture of artificial fuel. The object of the invention is to provide suitable and convenient means for utilising coal waste of coal mines and coal yards, and consists of combining the coal waste with a certain percentage of powdered clay or similar material, and conveying it to a mixing machine, but before entering which, the material is moistened with a suitable quantity of milk of lime or other suitable liquid. The prepared coal waste is then moulded into lumps of convenient size, which are carried to an oven or kiln in which they are baked or dried, and then carried to a water-proofing machine, where each lump is coated with a resinous liquid, after which they may be dried in a drying chamber if desired.

NEW MOTIVE-POWER ENGINE.—**Mr. G. HASELTINE** has patented (for Messrs. Wyss and Studer, of Zurich) an improved motive-power engine to be operated by the pressure of water, steam, or compressed air, and capable of use as a pump, blowing engine, or gas exhauster. The invention is designed chiefly for working machinery hitherto driven by manual labour in places where steam-power is prohibitive. It consists in the arrangement of the cylinder and crank shaft bearings at either side in one bracket common to both. Also in the introduction of the water from opposite sides to the cylinder, thereby obtaining a pressure of water on the same, perfectly counterbalanced, also in the employment of elastic pipes or conduits between the air vessel and the water distribution or inlet boxes, and in a loose water distribution box adjustable to the cylinder ports in the direction of the longitudinal axis of the cylinder.

Meetings of Public Companies.

EMMA SILVER MINING COMPANY.

The third ordinary general meeting of the company was held yesterday (Friday), at the City Terminus Hotel, Cannon-street, Mr. GEORGE ANDERSON, M.P., in the chair.

The notice calling the meeting was read by Mr. W. H. TOOKER, the secretary. The report of the directors, which was published in last week's *Journal*, was taken as read.

The CHAIRMAN said he had very little to add in explanation of the report, which spoke for itself. During the year which had passed since they last met in that room they had had a time of very considerable excitement and very great anxiety indeed with regard to the state of the property. Very frequently they had seemed to be on the eve of some great discoveries, which would reinstate the mine in its former self, but every time, unfortunately, they had ended in disappointment, and the directors had nothing new to tell the shareholders—nothing further, indeed, than was contained in the report. They had taken out a good deal of ore during the year, somewhere about 75,000l.; but this, unfortunately, had been done at a very great expense. The reasons for that expense were thoroughly explained by Mr. Attwood, and consisted mainly of timbering and pumping. In addition, a great deal of the ore treated was got by concentrating poor ores—a process which involved very great expense. No doubt all the shareholders had read Mr. Attwood's report, which was an interesting one, and gave full information about the position of the mine and its prospects, such as they were. The accounts had been made up to Dec. 31. Of course some considerable time had elapsed since then, but the directors had endeavoured in the report to give the shareholders every information which they possessed, but it was really nothing more than they had already been made aware of. All through the year the directors had done their best to carry on the mine with a view simply to the interests of the shareholders. They had done their best to give the shareholders what information they could as to the real state of matters, and on this subject he must say a few words. The directors had been blamed outside for the nature of that information. It happened, unfortunately for the directors, that about two years ago, in the earlier part of the proceedings, when the mine was flooded, the directors' information turned out to be wrong, and the outside information turned out to be right, and it would appear now that the public were determined to disbelieve the directors and believe outsiders. They had even gone the length of ascribing to the directors the basest motives for disseminating untrue information—that they had kept concealed from the shareholders the real state of matters for stock-jobbing purposes of their own. That statement was entirely baseless and untrue. There was no truth in it. The directors had done the best they could to give full information about the real state of matters, and it had been to the board a matter of extreme regret that the information had been of so unsatisfactory a character. It would be a matter of extreme pleasure to the directors to find that they themselves were utterly wrong, and that the information which they had acquired was utterly incorrect, but the directors entirely believed that the information which they had given the shareholders was correct, and that the information which had been given them from the outside—and which many of the shareholders had been too credulous in believing—was given for interested purposes, and was not reliable. Everybody in Utah was interested in the mine and in the prosperity of Utah; everybody wished to hold the property up by every means they could for almost everyone had mining interests, and those interests were damaged by the depressed condition of this great mine. (Hear, hear.) The outsiders had no means of getting the information; Mr. Attwood alone had had the means of obtaining the information, and Mr. Attwood had been very guarded indeed about letting people get information which might be made use of to the prejudice of the shareholders. The directors were very sorry that the shareholders had shown such a disposition to disbelieve the board, and to believe other people. (Hear, hear.) He did not know that there was anything further in the report that he need allude to, but he should be happy to answer any questions which might occur to any shareholders on the subject of the report and the accounts. In conclusion, the CHAIRMAN moved the adoption of the report. —Mr. WHITEHEAD seconded the resolution.

Mr. BURTON: Before any statement is made by Mr. Attwood, I wish to put a simple question to him relative to the superintendent and captain who were employed out there, whether they were Americans, Canadians, or men sent out from England? I simply wish to put the question, but I trust it will not prevent me making a statement presently.

Mr. GEO. ATTWOOD said that the mine superintendent was an American, the mining captain was a Cornishman of the name of James Roby, and the cashier and clerk was an Englishman.

Mr. SNELL asked who was in possession of the mine now?—Mr. G. ATTWOOD said that Mr. Hannibal Williams was now in possession of the mine.

Mr. SNELL asked if there was any truth in the statement that Mr. Morgan was in charge of the mine?—Mr. G. ATTWOOD said there was no truth whatever in the statement; it was like a good many other things in the Salt Lake papers—without any foundation.

Mr. SNELL asked the CHAIRMAN whether he could kindly inform the shareholders the amount of cash in hand in London?—The CHAIRMAN: There is about 6000l. in the hands of the company in London?

Mr. SNELL: Let us know when it was received from abroad?—The CHAIRMAN said between two and three months ago.

Mr. SNELL said there were two or three items in the accounts he should like some information upon. He went to the office and inspected the books, but was not allowed to take any notes, and therefore the information he brought away was by memory. He should like some information with respect to Mr. Park's debt, because he found by the books that the sum due to Mr. Park was originally represented by the sum of 30,000l. sent to this country by Mr. W. Hussey, to be applied for the purpose of paying dividends; that amount of money was afterwards transferred from Mr. Hussey's account to Mr. Park's as a loan. He asked whether the directors did not know that that was advanced by Mr. Park to keep up the dividends? No doubt that was the real transaction, and that was the sum which was now owing to him.

A SHAREHOLDER: It is unnecessary to go into that now; that is a fact perfectly well known to everybody.

One or two shareholders rose to speak, when

The CHAIRMAN said it would be impossible to have any order unless one gentleman spoke at a time.

Mr. SNELL said there was another item he should like to have explained—sundry debtors in America, 12,552l.; what was that for?

The CHAIRMAN said that if the shareholders desired it he would answer the questions as they went on. As regarded Mr. Park's debt, which Mr. Snell had raked up, that was settled in last year's accounts. Mr. Park and Mr. Hussey together acted as agents for the company; Mr. Hussey acted as resident manager, but the money transactions came through Mr. Park; but there were some money transactions with Mr. Hussey and Mr. Park, but, practically, they were one account, and the balance of one account was the balance of the other, and the two had to be run together to see how they stood. In the course of the running account Mr. Park over-remitted what was due, but when he did that he had ceased to have any interest in bolstering up the company, for he had sold his share a long time before that. At that time also Mr. Park was in Salt Lake, and had no means, by referring to the books, of knowing the exact state of the accounts. There were only 7000l. paid in excess of what it should have been in the whole account. With regard to the 12,000l. and odd of the sundry debtors, that was an outstanding balance for the sale of ore at the mine; it was impossible to get them to wind up the accounts exactly at the end of the year.

Mr. STEWART: Do you consider the parties perfectly safe for the amount?

The CHAIRMAN: Yes.

Mr. SNELL: Is not part of the amount due from General Baxter?

The CHAIRMAN: No.

Mr. SNELL was proceeding to make some further remarks upon certain amounts remitted, when the CHAIRMAN pointed out that he was mixing up the accounts, and not adhering to the accounts between the end of one December and another, and he said that if Mr. Snell did so he would involve the meeting in confusion. (Hear, hear.) The accounts were made up from one year's end to another.

Mr. SNELL said his object was to show that up to Dec. 31 the accounts with respect to the Emma Mine were different to what they were in the balance sheet. Considering that this meeting was considerably over-due, he thought it a pity the shareholders had not been given more information with respect to the state of the mine. The shareholders were not told in the circular that they had a balance of over 8000l. at the bankers.

The CHAIRMAN: The 9000l. has come home since then.

Mr. SNELL, referring to the directors' fees unpaid, said that the shareholders with whom he acted would be glad to know if the directors would claim them from the company?—The CHAIRMAN: It has not been stated to the credit of the directors; it is put there to show that the directors were entitled to them, but no sum has been drawn.

Mr. SNELL said it would be satisfactory to know whether the directors claimed it.

A SHAREHOLDER said that the question was an unfair one.

The CHAIRMAN: The directors have never taken the matter into consideration at all, but it was very likely that when they did come to take it into consideration their reply to it would depend a good deal upon what the conduct of the shareholders is to-day. (Oh, oh, cheers, and laughter.)

Mr. SNELL asked whether the income tax upon the directors' and clerks' salaries had been paid by the company?—The CHAIRMAN: As the directors had not drawn any salaries how could there be any income tax paid upon them. (A laugh.)

Mr. SNELL said he meant previous to the year 1872.—The CHAIRMAN said that previous to 1872 no doubt the income tax was paid by the company.

Mr. SNELL: They had no business to pay it. (Oh, oh.)—The CHAIRMAN said it was a usual thing in companies to pay the income tax. (Hear, hear.)

Mr. SNELL said that, perhaps, the most important part of the report was the portion which contained the report of Mr. Attwood. In page 6 of his report Mr. Attwood stated that the net return resulting from the working of the mine from March, 1873, to March, 1874, might be considered at least £131,000, after paying all expenses, also numerous old debts, and then he went on, very properly, to show what he had done with the money. There was, "Cash remitted to London office from November, 1873, to April 1, 1874, £85,645-33; money due on bills for ore sales, for which security is held, £21,295-49; money due by Mountain Chief Company (Limited), £557-42; value of ore, lots 112 and Mr. Nos. 4 and 5, £24,000-00; estimated value of ore on hand at Sandy Railroad Station, and at mine, £7,000-00; cash at Salt Lake City, \$12,155-58; total, \$131,046-58. Now, he should like the secretary to give the dates when the \$65,645 were received in London, and also whether the money for the ore sales had been remitted here, and also what explanation was to be given of the item of cash at Salt Lake City office.

The CHAIRMAN said the cash-book was not at the meeting, and, therefore, he could not give the precise dates when the money was remitted; but it was very plainly stated in Mr. Attwood's report that the cash was remitted to the London office from November, 1873, to April 1, 1874, and, therefore, a portion of that time was outside the date of the present accounts. The 9000l. came in one sum, but he said that there was 1000l. before that.—Mr. SNELL said that perhaps Mr. Attwood could remember when it was sent over.—Mr. ATTWOOD said he really could not remember without looking at the books.

The CHAIRMAN said he really could not see the point which Mr. Snell was driving at; what did it signify whether the remittances came in February, March, or April? (Hear, hear.)—Mr. SNELL said it was very important to know what was being done with the money from the mine.—Mr. ATTWOOD said there were bills

Original Correspondence.

CONDENSATION AND EXPANSION OF STEAM—ITS HISTORY AND PROGRESS.

Sir,—The labours of any individual that have benefited his countrymen and mankind at large have generally secured their author the attention of the wise and good. In no case can it be proved that the labours of individual men have conduced more to the welfare of England than in those few examples that the steam-engine presents, in those marked epochs of its history when its basis has been in so marked a manner improved that the practical results immediately following never have, nor never can, leave any doubt as to who their authors were, when the misleading influence of interest and jealousy permits the facts and those practical results to come home to the unbiased judgment of mankind. Therefore I submit the following facts and results, as if such in bare outline are unworthy of notice and your author can do will procure consideration.

Mr. Woods in 1844, at that time member of the Institution of Civil Engineers, and next in authority under George Stephenson on the Liverpool and Manchester line, read the paper published by the Liverpool and Manchester of the Institution. In which he states that the best non-condensing engines were using 16 lb. of coal, that then the best non-condensing engines 8 1/2 lb. of coal, and the locomotives 8 lb. the best condensing engines 8 1/2 lb. of coal, and he adds "The figures given above indicate the importance of keeping pace with the latest improvements of the day." Mr. Woods knew I was using steam of 100 lb. pressure expansively, condensing it by the atmosphere, and obtaining the vacuum, also retaining the steam-water, and that I had then reduced the 16 lb. of coal to 3 lb. per horse-power per hour. He also knew than when in his locomotives 60 lb. was the highest pressure used, I was doing as stated above. Mr. Woods, therefore, points to all this, and seems to say keep your eye upon those improvements, and if possible keep pace with them. This railway led the way in pressure and economy. At this point I may be permitted to repeat the remarks of two persons, one an American and the other an Englishman, and both competent from the examination they had given to the subject, and their practical knowledge, to form an opinion. In both cases the words were "Craddock is before his age." May I remark that it is not the age that makes the man, but the man that makes the age. Practical demonstration, such as given below, is the seed from which progress is sure to result, in defiance of all human obstruction: such obstruction may kill the man, but such seed will in the end produce its proper fruit. Give numbers to these demonstrative results, for ready reference.

I give numbers to these demonstrative results, for edifying instruction.
1.—In 1840 the condensation of steam was considered as quite an impossibility in an engineering point of view; but things are possible or impossible in proportion as we adopt proper means to attain a desired end. I soon found that by setting the condenser in motion I could increase its condensing power twelvefold, and as I shall show that by 1853 I had reduced the 8 lb. of coal in the condensing engine to 1 lb., and having by the atmosphere, as I shall show more in detail, placed it in our power to render all engines condensing engines, it follows that I have reduced the surface required in the condenser for given power as 192 to 1. Or, to put it in a more practical form, from (say) 1920 square feet per horsepower to 10 square feet.

II.—Hall applied his surface condenser in water with Watt's engine, and required 6000 gallons of cold water per horse-power per day of 10 hours. In 1812, with a 5-horse engine, and my condenser in the atmosphere, the fresh supply of water required per day was but 1 gallon.

III.—In 1843, still condensing by the atmosphere, and in this case a 25-horse engine, I reduced the coal from 16 lb. to 3 lb. per horse-power per hour, and still required only 1 gallon per horse-power per day of fresh supply of water. This engine was in constant work for seven years, confirming by such practice these facts.

IV.—This is a point of great moment, because it holds the same position in relation to the expansive engine that Watt attaches to the injection of cold water into the cylinder of Newcomen's engine. It is well known that Watt, as soon as he could satisfy his mind of the great loss thus caused, his separate condenser was conceived, which practically was the most important demonstration he brought out in his invention and practice. But for a moment just glance at the obvious cause in his case, and the concealed character of the cause of all the mystery that for so many years hung over the expansive engine, and which the Government experiments, to which allusion is hereafter made, as well as all the acute minds left undiscovered, until, in 1845, I pored over the subject until I discovered the cause. And then for years men would not believe that such cooling, trivial

as they thought it, could cause such practical failure in the expansive engine. It was in vain I reminded them that on each stroke the loss was insignificant, but that it increased with each stroke; this they could not see, because, as they would have it, that upon the point under notice the non-expansive engine was subject to the same cause; and some went so far as to say the use of expansion would be more likely to diminish the effect from this cause than to increase it. To determine if the expansive engine had any superior value, the English, French, and American Governments made experiments that cost threefold the money that in my hands established not only this point, but several other points of equal value. Their experiments determined there was no value in the expansive engine; mine have shown its value to the British empire to be of 30,000,000, not to say more, because the old non-expansive engine

30,000,000, per annum more value than the non-expansive engine was. By way of a short illustration, we suppose a saturated steam entering the cylinder at 100 lb. pressure, and 329° temperature, and suppose the cylinder also at 329°, the steam to be cut off at 1-10th of the stroke, and in the impelling stroke to fill the cylinder, and end that stroke at 7 lb. pressure and 176° temperature. In this case we suppose no heat lost but what is carried by the steam to the condenser; in a word, the only source of cooling now under notice is due to the steam itself. The cylinder being as hot as the boiler steam, no condensation of it would take place at the first stroke. But mark what has taken place—why, that the steam has lowered in temperature to 176° at the end of the impelling stroke, this being 153° below the boiler temperature; and at the end of the exhaust stroke we find it 198° below the boiler temperature. But

exhaust stroke we find it 198° below the boiler temperature. But we will deal only with the impelling stroke, and that on dividing 153 by 2 we have (say) 76° of cold through this stroke. Another point to note in this stroke is the average density, as well as the average amount of cold, as the power of carrying off heat depends upon both these conditions, from which it will be seen that as in the exhaust stroke the steam is in a rarified condition, its power of absorbing heat is much under what is generally supposed, unless there be water present on the hot metal. It is only necessary here to say that whether on the impelling or the exhaust stroke, whatever heat the cold steam can abstract from the cylinder it is sure to carry to the condenser, and, therefore, must be supplied, or in the expansive engine failure will be the result. The common notion was, and is now to some extent, that it was and is supplied from the steam on

entering before cut off. But what I say and know is that it heats the cylinder only by its condensation, and that only momentarily, as no sooner is the communication with the boiler closed than, by the steam expanding, the conditions are produced which cause such water again to take from the metal of the cylinder the same quantity of heat which it had but momentarily imparted to it. Therefore the metal of the cylinder only holds that heat in the passive state, when it is required in the active state, in union with the water, to form steam to impel the piston from the commencement of its stroke to the end, instead of being in the passive state until near the end of the stroke, when its use is of little value, and the condenser is its certain destination. Suppose, now, for each stroke I gain by weight of the steam from the boiler to be required to make good the loss of heat absorbed by the cold steam, what follows? Why, that for the first stroke one is required, the second stroke would require 2 grains, and the tenth stroke 10 grains, and so on. In this way the expansive engine becomes much the same as if we suppose 10 grains by weight of steam would fill the cylinder to work at full pressure, and we let 1 grain in at the proper time; to impel the piston, but keep back the other 9 grains until near the end of the stroke, and then let it in. Is it wonderful with

such cause in action as it was in the expansive engine, that the condenser was choked with steam, and that such engines were heat-wasters instead of heat savers? Until 1845 I had used the double-cylinder engine, and as I condensed by the atmosphere I could not any moment weigh the steam water. In this way I found that to keep the tubes of my boiler just so full of water, as the least steam would produce the most power, it required a considerable portion of the tubes to be exposed to the action of the fire above the water level. In this way I superheated my steam from 1843, and until 1858, and no better plan has been presented to this day, if such boilers were used, and no other boiler so good, or so safe, is yet produced. Engineers said the tubes would burn away above the water level. I used the boilers for 17 years, and found no such result. After 1845 I carried the superheating even further than practice indicated that it was required; and in 1852 added also a complete steam-case. Here is the cause discovered, and its evil tendency neutralised, and a practical experience of 17 years, derived from the every day use of such means, demonstrated their soundness, as the results attest their value. It was with a single-cylinder engine that I was driven to pore over the effects which led me to the cause in 1845; but in practice I prefer the double-cylinder engine, and from such engines were the results obtained that are given in this letter.

V.—In 1846 a 20-horse engine and its condenser still in the air were erected in a room of moderate size, and demonstrated the practicability of rendering the heat used for power afterwards valuable for heating, drying, and ventilating purposes. The air of the room at starting being 60°, it being summer time it rose to 120° as the highest. The breeze produced by the motion of the condenser imparted the same feelings as those of a breeze in the open air on a very hot day.

VI.—In 1848 the first engine sold to the public, and it was only a 4-horse power engine, though for years it did 10-horse work, was tested against the then portable engine, and threshed as much wheat with 1 lb. of coal as the portable with 17 lb. of coal. This engine was then condensing by the atmosphere. In this experiment the wheat was out of the same stack and the coal out of the same heap.

VII.—In 1849 an experiment was made with one of my engines and my condenser in water. The engine worked up to 20-horse power. The water it was found to require for condensation per horse-power per hour was 80 gallons, whereas Hall's condenser, applied to Watt's engine for the same purpose, required 600 gallons per horse-power per hour. Further, my condenser required but 3 square feet of surface in the condenser per horse-power, but Hall's required 20 square feet of surface in the condenser per horse-power.

VIII.—In 1854 I supplied a 30-horse engine to a saw-mill at Ranelagh-road, Pimlico. It was the rule in the office with the previous engine, to book the work it did against the coal it used. The same was done after with my engine, the result being that the same amount of work that required 16 lb. of coal with the former engine was done by 1 lb. of coal by my engine. At that time the owner of the mill was giving 17 pence per week to remove the sawdust and shavings from his mill. He asked me whether such could not be burnt. My reply was "Yes; and save all the coal, but it would require a boiler with large fire-door and large grate." I made such a boiler, and it saved all the coal and the 52*l.* a-year also, so that this man, instead of paying for 16 tons of coal a-week to drive his mill got the same power for nothing, and at the same time saved 52*l.* a-year.

IX.—In 1855 Prof. Rankine made experiments upon a 220-horse engine identical in all points except size and power to that referred to above as No. 8, the substance of which is that the boiler generated 13·56 lb. of steam for each pound of coal burnt, and that the engine so used such steam as to produce the horse-power with 1·018 lb. per horse-power per hour.

X.—In 1848 I first brought this invention under the notice of the Admiralty. In 1849 Mr. John Seward read before the Institution of Civil Engineers a paper he had prepared at the request of Government. In this paper he says one great objection to expansive engines arises from the great enlargement of steam cylinders for a given power.

On Nov. 23, 1858, Prof. Rankine confirms the foregoing statements by the following:—

the following—

CIRCUMSTANCES OF THE EXPERIMENT.—At 10.25 A.M. the steamer (Thetis) started from the quay at Greenock, with the pressure in the boiler at 80 lbs. per square inch above the atmosphere, and such a main steam pressure as would allow the engine to run steadily, and at 11.20 had reached 101 lbs. per square inch. At 11.30, the pressure being about 115 lbs. per square inch, the condition of the fires was carefully observed, the stoke-hole cleared of coal, the coal bunkers closed, and 448 lbs. of coal, which had previously been carefully weighed on dock, were sent down in sacks for the supply of the fires during the experiment on the consumption of fuel, which was held to commence at 11.30. During that experiment, and for a considerable time after its termination, the pressure (excepting during an interval, when the dampers were closed, to be afterwards specified) never fell below 112 lbs., nor rose above 125 lbs. on the square inch, and in general remained steadily at 115 lbs. At 12.30 the dampers that regulate the admission of air into the furnaces were shut, the engines stopped, and the experiment was held to have closed, exactly one hour after its commencement; but, as the fires were lower than they had been at 11.30, they were again fed at 11.42 (the dampers being then opened, and the engine started), so as to bring them into as high a condition as they were at 11.30, and the coal so used was included in the consumption of the coal burnt during the experiment on the combustion. The coal remaining on the floor of the stoke hole was then sent on deck, and weighed, and found to amount to 218 lbs., so that 230 lbs. had been used during the experiment of one hour in length. During, and for a considerable time before and after, the experiment the speed of the engine never fell below 40 nor rose above 53 revolutions per minute. A leakage of steam took place from the stuffing box of the slide valve, but for this it was impossible to make any allowance. The steadiness both of the pressure and the speed during the experiment was such that the experiment showed that the power of the engine during this experiment was no extraordinary effort, but a fair trial.

POWER OF THE ENGINE.—The horse power of the engine, as indicated by a series of diagrams taken during the experiment, varied from 221 to 231, the mean being 226.

CONSUMPTION OF COAL.—The coal burned in one hour, as ascertained as already described, with every precaution to make the fires as high at the end as at the beginning of the experiment was 230 lbs., being at the rate of 1·018 lb. per indicated horse power per hour.

CONDENSATION.—The surface condenser acted perfectly, maintaining a steady vacuum of 13 lbs. per square inch. It is the most satisfactory example of surface condensation that I have seen.

(Signed) W. J. MACQUORN BASKINE.

69, St. Vincent-street, Glasgow, Nov. 23, 1858.

COMPARATIVE TABLE, with 130 lbs. absolute pressure in my boiler, and the Seward or 25 lbs. absolute pressure in the common boiler.

	Common practice.	My practice.
Cubic feet of space occupied by steam cylinder for 500-h.p.	Same	Same
Cooling surface of steam cylinders of 500-h.p., in square feet ...	Same	Same
Cubic feet of space occupied by boilers of 500-h.p.	6624	1695
Relative heat absorbing surface of boilers, to coal burnt, ditto....	10	45
Relative grate surface to coal burnt, ditto	2	8
Weight of 500-horse engine	Tons 105	76
Weight of boiler ditto	75	36
Weight of water in the boiler ditto	48	6
Coals for fourteen days' steaming, ditto	\$28	75

Professor Rankine says ("Steam-Engine and other Prime Movers," page 461): — "The construction which ensures the greatest heating surface relative to the fuel consumed is that in which the boiler consists mainly of a sort of cage of vertical water-tubes enclosing the furnace, as in Mr. Craddock's boiler, where there are from 6 square feet to 10 square feet of heating surface for each pound of coal burnt per hour; and the efficiency is accordingly greater than that of any other boiler which has yet been brought into continuous practical operation on the large scale." At page 297 is found the experiment of the author by which this boiler was found to make 13.56 lb. of steam for each 1 lb. of coal burnt in the furnace.

In the *Engineer* of Nov. 5, 1858, p. 358, in a leader, it is stated that every ton of coal saved on a voyage between England and Australia was then equal to a gain of 9%, the cost of coal being then 3*l*. per ton, and the freight 6*l*. per ton. Suppose, therefore, engines of the power of the Hercules (8000-horse power), which is 16 times 500, then, from the above table, we have near enough for our present purpose a saving on freight of coal and machinery of 9008 tons, which at 6*l*. per ton amounts to 75,448*l*., and in coal saved 7200 tons, which at 3*l*. per ton gives 21,600*l*. on each voyage of 56 days. Suppose five such voyages in the year, and the saving upon one such ship amounts to 485,048*l*. This shows the reader that the conversion of unprofitable freight into profitable is, therefore, of far more value than the saving of coal in navigation.

On turning to the *Engineer* of June 11 and 18, 1858, pages 445 and 463, are two leaders on the long discussion upon high and low pressure steam, to which I contributed 24 long letters. In those leaders is found the following:—

Mr. Cradock (Jau. 15) ascribes the observed fact of the condensation of the steam within the cylinder, and its re-evaporation, to the cooling and heating of the metal of the cylinder; indeed, he appears to have arrived at this conclusion on the subject

as early as 1845. As the self-destructive process now described constitutes really the cardinal defect of most of the attempts to economise by expansive working, it is difficult to see much light as possible upon the subject (page 463). But the prime condition for economical steam expansion is to be found in the means for preventing condensation within the cylinder, and on the metal surfaces by supplying heat to prevent the condensing process, as when there is no condensation there is no subsequent re-evaporation. Mr. Cradock (Feb. 10) prefers in practice to supply the extra heat in the steam itself by superheating it (see page 71). Of this we are persuaded, that there is more in steam and the steam-engine than is dreamt of by most engineers, and that for most of us it would be better to be less dogmatical and self-secure, and more open to the instruction of those who, as natural philosophers undertake, and successfully, too, the investigation of first principles. Practical men—that is, the men who apply mechanics in practice—are by the nature of their vocations and by their habit of mind generally not inclined to enquire to investigate, and it becomes them neither to desire, nor treat with indifference or neglect, the necessary and invaluable labours of the scientific coadjutors. That the steam-engine is open to improvement, and that it may be very much improved, too, is unquestionable, but we must have a little more science infused into the current of progress as a flux to reduce to order and consistency the heterogeneous mass of practice, and to distinguish the true from the false. We congratulate our readers and correspondents on the benefit that has accrued to the profession from the free discussion of the question of steam-power in our pages, and we confidently anticipate an advance in the practice of engine-builders. Engineers must attend to what lies next them to be done; they have to probe the action of the steam within the cylinder to satisfy themselves of the injurious precipitation and re-evaporation of the steam neutralising the efficiency of the expansion, to apply the means of preventing such condensation of the steam by the application of additional heat to the steam directly through the cylinder, or internally by superheating it, and to ensure an economically good vacuum in the condenser. They must further see what is to be done in expansive gear, to test the imperfections of the link motion, if such there be, and to compare the advantages of independent expansion valves, also to equilibrate the steam-valves, so as to unload them of the injurious pressure of the steam, and relieve them of such injurious pressure to avoid excessive friction.

THOMAS CRADDOCK.

[To be continued in next week's Mining Journal.]

FOREIGN MINES.

MENZENBERG.—R. K. Roskilley, May 9: Dickin's Engine-Shaft: We have set this shaft to sink below the 34 by nine men, at 100 thalers perachter; the lode is 4 ft. wide, containing some fine grey copper ore, and it has a very promising appearance, but which at present is a little harder than usual; however, judging therefrom, we are led to believe that it will shortly improve. The sinking of the shaft is being pushed on with vigour. Machinery and pitwork working well.

SHAFTS.—In the shaft is being shushed on with vigour. Machinery and pitwork working well. **AMALILLOS.**—In the 60, driving west of San Rafael's shaft, a large vein or fissure has disarranged the lode. The 50, west of San Francisco, is in a very strong lode, consisting of quartz, carbonate of lime, and good stones of ore—containing 15 per cent. Lithium. The 50 cross-cut, north of Magdelon's shaft, is very hard for driving. The 50, west of the 50, is in a very strong lode, consisting of quartz, and with good stones of ore. The lode in the 55, west of the same shaft, is irregular and well defined, but continues quite unproductive. There is no improvement in the 50, east of San Victor shaft. The 50, west of San Victor shaft, is being driven south to meet the cross cut north from San Carlos shaft. In the 50 cross-cut, north from San Carlos shaft, the granite is very hard for driving. The 30,

west of San Carlos shaft, is suspended for the present. In the 39, east of Addis shaft, the lode is very much improved, and is now opening splendid ore ground, worth 3 tons per fathom. The 40, east of air shaft, is being driven north on the cross course, and we are daily expecting to reach the point of the lode. The lode in the 20, west of Addis's cross-cut, is small and disarranged. In the 50, east of Crosby's shaft, the lode continues regular, but does not contain any lead. The lode in the 50, east of Judd's shaft, has still further declined in value in the past fortnight, now worth $\frac{1}{2}$ ton per fathom. The ground in the 60, east of Judd's shaft, is hard and not so promising. In the 50, west of Crosby's cross-cut, the lode is small, compact, and regular, worth $\frac{1}{2}$ ton per fathom. In the 50, west of the 50, east of field's shaft, is again improving, now worth $\frac{1}{2}$ ton per fathom. In the 30, west of Swatfield's shaft, the lode is small, with good stones of ore, worth $\frac{1}{2}$ ton per fm. In the 20, west of same shaft, the ground is very hard, and the lode small and poor. At Judd's engine shaft, sinking below the 60, the men were occupied in cutting a plat or ledge for the stuff in the past month. The lode in Melchor winze, sinking below the 25, has fallen off in value in the past few days, worth 1 ton per fathom. Mignel's winze, below the 65, is suspended for the present. In Rafael's winze, below the 75, the lode is large and strong, with good stones of ore. The usual average rate of raising was maintained during the past month, and the stone was obtained in the usual manner. The machinery for the 20, and the 30, are going on very regularly, and the machinery working the miners in good working order. We estimate the returns for May (five weeks) at 250 tons.

gold working order. We estimate the returns for May (five weeks) at 250 tons.

FORTUNA.—Canada Inco's: The lode in the 110, driving west of Henty's shaft, is small, with occasional stones of ore, but not enough to attach a value to. In the 100, west of Judd's shaft, the lode continues unproductive. In the 80 east nothing further has been discovered in Henty's cross cut, which is being continued in a southerly direction. The lode in the 80, west of Kennedy's shaft, is regular and well defined, with a good stone of ore in the back of the end. In the 70, west of Lowndes' shaft, the lode is small, and is not productive. The lode in the 90, east of Lowndes' shaft, is open and easy for driving, and will doubtless improve shortly when it approaches Manuel's winze. In the 80, east of Caro's shaft, the driving is resumed; the men are opening the north side to prove the lode in that direction. In the 60, east of San Pedro's, the water being drawn out the driving is resumed; the lode is strong and regular, with good stones of ore, worth 1/2 ton per fathom. Belmonte's winze below the 70 is holed to the 80; the lode is of no value. In Manuel's winze, below the 80, the lode is much improved, worth 3 tons per fathom, and moderately easy for sinking.—Los Salinos Mine: In the 110, driving west of San Carlos shaft, good ore ground has been opened in the course of the month, but the lode has failed in the past few days. In the 100, driving west of the lode in the 110, the lode is rather small. In San Carlos shaft, is small, and the granite were hard for driving. In the 120, east of Morris's engine shaft, the lode is large and strong, but does not contain ore enough to value. The lode in the 110, east of Cox's shaft, continues unproductive.

nough to value. The lode in the 110, east of Cox's shaft, continues unproductive. In the 100, east of San Miguel shaft, the lode is small and disarranged, worth $\frac{1}{2}$ ton per fathom. The lode in the 45, west of Swadwell's shaft, is very fine, with a little iron ore, and worth 2 tons per fathom. In the 35 fathom level, west of Palgrave's (north part), the lode is disarranged by strong cross-joints. The 45 fathom level, west of Palgrave's, has fallen off in value during the past fortnight. In the 45, east of Palgrave's the ground is broken and disarranged and the lode unproductive at present. The 25, east of footway-shaft, continues unproductive. The sinking of Buenos Amigos engine shaft below the 110 is commenced, and we hope to get it down to the 120 at a good pace. Palgrave's engine shaft is being got ready for sinking below the 45 to a new level. The lode in the Toledo winze below the 100 is compact and regular, but not so productive as it was, now worth 2 tons per fathom. In A-dolfo's winze, below the 45, the lode is not quite so productive as it was, worth 2 tons per fathom. The lode in Sereno's winze, below the 45, is small and spotted with coal. In the 35, winze, below the 35, the lode is diminished a little but still of value, worth 2 tons per fathom. The average quantity of ore was raised in the past month, and the stopes at Salidos are yielding well at present. The ordinary surface works are going on with the usual regularity. The machinery is in good condition in both mines. We estimate the returns for May, five weeks, at 450 tons.

LINARES.—The lode in the 85 fm. level driving west of Crosby's shaft is small and disarranged. The 85, west of south lode, is opening fairly productive ore ground, worth 1 ton of lead ore. The lode in the 75, west of Crosby's shaft, continues unproductive. In the 75, west of San Francisco's shaft, the lode is small and disarranged, worth 1 ton per fathom. The lode in the 55, east of San Francisco's shaft, is small and unproductive. In the 55, west of San Francisco's, we have opened the south part of the lode, where it has a promising appearance, and is worth 1 ton per fathom. The lode in the 55, west of San Francisco's, is small and regular, worth 1 ton per fathom. In the 55, east of San Francisco's, the lode consists of quartz, carbonate of lime, and good stones of ore, worth 1 ton per fathom. In Warner's engine-shaft sinking below the 85 the men are making satisfactory progress. The lode in No. 187 winze, sinking below the 55, is getting smaller and less productive than it was, now worth 1 ton of ore per fathom. The tribute department produced the usual quantity of ore in the past month, and the stopes have not undergone any change worthy of notice. The surface works are going on very regularly, and the machinery is in good condition. The water is being pumped out of the shafts at the rate of 100 ft. per hour.

We estimate the raises for May—five weeks—at 150 tons.—Quinteros Mine: The ground in the 80 driving west of Taylor's engine-shaft is hard, and expensive for driving. In the 65, west of same shaft, the lode is large, and much more open than it was, but is not producing any lead at present. The lode in the 55, west of same shaft, is chiefly composed of unproductive material. In the 45, west of Cox's shaft, the lode is small, and not very regular in its outcrop. It was, now, worth 1 ton per fathom. In the 80, east of Taylor's engine-shaft, there are some small branches, with spots of ore. The 65, east of this shaft, is passing through a hard bar of unproductive ground. The lode in the 55, east of Adis's shaft, continues unproductive. In the 55, west of San Carlos shaft, the lode is small, and hard for driving. The lode in the 65, west of same shaft, is very wide, consisting chiefly of calcareous spar and lead ore, and produces 1 ton per fathom. The lode in the 65, east of San Carlos shaft, is very rich, chiefly composed of galena and blende, and produces 1 ton per fathom. The lode in the 55, east of the same shaft, has fallen off a little in value in the past week, and is now worth 1 ton per fathom. The 45, east of Juil's shaft, is opening up good tribute ground, worth 1½ ton per fathom. The lode in the 32, east of Juil's shaft, is of a promising appearance, and the granite is getting easier for driving, present value 1 ton per fm. In San Carlos shaft sinking below the 65 the granite is very hard for sinking through. Juil's shaft is holed to the 55. Adis's shaft sinking below the 55 is in a very promising position, and the lode is large, and open, and of a promising appearance, worth 1 ton per fathom. Pedro's shaft sinking below the 32 is passing through a productive lode, worth 1½ ton per fathom. The lode in Acen's winze below the 45 yields a little lead, but not enough to value.

(For remainder of Foreign Mines, see to-day's Supplement.)

RAILWAY ACCIDENTS.—Mr. Chas. Jordan, ironfounder, of Newport, Monmouthshire, has taken out a patent for working railways without switches or crossings on the main line, his object being to lessen the terrible railway accidents now so frequent, and, therefore, to save life. Mr. Jordan's scheme is not only novel, but also highly ingenious, and if carried out will revolutionize the present system of the working of railways. Mr. Jordan proposes to make the up and down main lines without the usual switches, turnouts, and crossings, the lines being continuous from end to end, and to work such road by transferring a train or trains at stations or where shunting is necessary, or at junctions with other railways, from the main line to the adjacent siding by lifting the train bodily from one line to the other. This at first sight would appear a formidable operation, but to any one conversant with the science of hydraulics, it will seem a comparatively trifling affair. The cars or trucks are lifted about with ease by means of powerful hydraulic rams, and it will be at once apparent that modern science has smoothed down difficulties quite as great as Mr. Jordan has to contend with. The lifting will only be an inch or two, and the hydraulic apparatus, as now constructed, will make nothing of the weight, and as to time Mr. Jordn calculates that a few minutes will suffice to transfer a train from one road to another without disturbing a single passenger. The whole work of a station and its regular hydraulic apparatus, may be done by a few men at the stations, two lads. The time saved in situations where there is great, and the risk of collision reduced to the lowest possible point, where Mr. Jordan's patent is adopted.

Mining Correspondence.

BRITISH MINES.

ABERDAUNANT.—S. Toy, May 13: The stope below the intermediate level is worth 6s. per cubic fathom for lead. The stope over the No. 2 adit is worth 13s. per cubic fathom for lead. In the east part of the set we are making fair progress in putting the open cutting up through the field, but have not found the back of the lode yet.

ABERYSTWYTH (Silver-lead).—John Trevelian, May 11: As I have always led the directors to believe that we were approaching something good, I have the greatest pleasure in being able to state that we have a further and decided improvement at the 88 east; the lode will yield at present 1½ ton lead ore per fathom, and almost an entire absence of sulphur; in fact, we are on the eve of a rich and lasting mine. The western end contains ore, but not to value. The tribute pitches are without change.

AMNODD AND NANTDU.—John Kemp, May 14: The shareholders of this mine will be glad to hear that operations are being pushed on with all possible speed. The whims have been moved and re-erected at the new engine-shaft, from which great advantage will be derived in drawing the stuff from the men in sinking, which will do away with a great deal of manual labor. I am glad to say that some fine stones of lead have been taken from the north lode about 20 ft. from surface. This speaks well for the lode in depth, and no time shall be lost in penetrating the lode at about 100 yards depth.

ASHHETON.—M. Whitford, John Craze, May 12: The sinking of Maur and Browne's shafts is progressing satisfactorily. In the 40 end west the lode is from 3½ to 4 ft. wide, and will yield 2½ tons of lead and blende per fathom. The two stopes in the back of the 40 will yield in the aggregate from 3 to 4 tons of lead and blende per fathom. In the winze below the 30, west of Browne's shaft, the lode will yield 2½ tons of lead and blende per fathom. The winze sinking below the 30, on the south part of the lode, is yielding good stones of lead, and from its appearance we expect an early improvement. The stope in back of the 20, on the south east branch, will yield 1 ton of lead per fathom. The stope in the back of the 8 west will yield 1½ ton of lead per fathom.

BAMPFYLDE.—Sam. Mitchell, May 11: Having so recently given an elaborate report of the mine, it would be unnecessary to enter into detail; suffice it to say that this mine never looked better than at the present time for copper, iron, and manganese. It will be well, however, to state this fact, that Slater's lode at Stowford will yield respectively 35 tons of iron ore per fathom at each of the four points opened upon, and with every appearance of continuing to do so. The several lodes at Croome are very productive, and large quantities of iron ore are being daily brought out. The whole of the metals for the tramway are laid down, the men are filling in the ballast, and in a few days we shall be ready to forward the iron by the tramway. The traction engine works well, and is conveying the ore from the lodes not yet communicated to the tramway to the railway station. Everything is going on very satisfactorily, and this property will prove a most eligible investment.

BEDFORD CONSOLS.—G. Rowe, J. Mitchell, May 13: The lode in the 76 is laid open 7 ft. wide, of a most promising character, yielding very strong mundaie and fine stones of rich quality copper ore.

BEDFORD UNITED.—W. Phillips, May 14: There is very little change to notice to-day. We postpone taking down the lode in the 47 east and in the rise until next week. The prospects of the mine are still very cheerful.

BOG.—W. T. Harris, J. Barkell, May 13: The lode in the 175, driving west from the engine shaft, is still producing 1 ton of lead per fathom. The end driving east in this level is producing a little lead and blende, but not enough to set a value on. We have discontinued the driving for the present, and put the men to cut a lodge for the reception of stuff, which we expect to complete in a week or 10 days, when the driving will be resumed. We have commenced to drive on the branch recently intersected in the cross-cut in the 115, and it is improving as we open upon it, now worth 15 cwt. of lead per fathom, and with this exception there is no alteration to notice since last report.

BOWDEN HILL.—J. Goldworthy, May 11: The ground in the adit is somewhat stiffer for progress. The stratum is less jointy, and requires more powder; however, this, from present appearances, will be of short duration.

BURROGH AND BUTSON (St. Agnes).—Henry von Uster, F. G. S., Captains J. Christophers and J. Mayne, May 13: Our 62 fm. level going west is still disordered by the slide which recently came in, but the ground looks kindly for mineral; lode up to the slide 4 ft. wide, with occasional saving work for copper. Going east the lode is 3½ ft. wide, looking well for lead bearing ground, but is not being driven at present, as the upper levels going east are more likely to become profitably productive in a short time. In the 40 west we are stopping the lode in a course of blende, producing fully 2½ tons of ore per fathom. The 40 fm. level, about 12 fms. west of Tonkin's, we have four men stopping, and could put on more, on a strong bunch of blende, and some lead with it, about 6 ft. wide, producing fully 2 tons per lineal fathom. As soon as we can bring back the men urgently required this line weather for quarrying stone for the new dressing house we shall cross cut north from this level, on the main lode, to cut the lead lode, which may be only 3 fms. distant, and which looks so promising going down from the 20. In the 20 east, 28 fms. east of Tonkin's shaft, we are stopping in the back on lead and blende, about 5 fms. long, producing at present about 1 ton of argenteous lead, of the probable value of 18s., and 2 tons of blende from a leader just come in from the main lode, and apparently widening fast going east. The leader of lead looks wider and longer in the sole, where it will be understood as soon as the 30 fm. level is brought up to unwater it. In the 20 west we find the old miners went off about 8 fms. from the main lode on a north and south cross lode, and meeting another east and west lode, looking exceedingly kindly for lead, followed it west, which has already been cleared fully 25 fathoms (working wide), without either north or south wall as yet. But clearing is heavier in this mine than has, perhaps, ever before been experienced in Cornwall, the lodes being very wide, and the timber having in great part been removed by the old miners, which could only have been known to men of the neighbourhood. We shall push this on with six men (three in a core), and when cleared into the end and cross cut south to see the main lode again, which must then be near one of the bunches of copper which during the former workings have been so productive. At surface we are busy preparing for the new dressing house, to contain a great improvement on the old hum-drum jiggers put up 18 months ago.

As instructed, our reports for publication will in future be made up for the second and fourth Saturday of each month, instead of weekly.

CRENVER AND WHEELABRAHAM UNITED.—Wm. Thomas, J. Hammill, May 13: Sturt's Engine Shaft: In the 215, driving west of shaft, the lode is 3 feet wide, yielding 2 tons of copper ore per fathom. St. George's Shaft: In the winze sinking below the 20, east of shaft, the lode is 1½ ft. wide, producing 1½ ton of copper ore per fathom. In the 205, driving east, the lode is 2 ft. wide, and yields 1½ ton of copper ore per fathom. Wood's Shaft: In the 208, driving east, the lode is 6 ft. wide, producing 4 tons of copper ore per fathom; we resume the sinking of this shaft at once, as the end has thoroughly drained the tribute ground east of this point. Pelly's Engine Shaft: In the winze sinking below the 234, west of shaft, the lode is 6 ft. wide, yielding 3 tons of copper ore per fathom, and in the stope in the bottom of the 234, east of winze, the lode is 6 ft. wide, producing 3 tons of copper ore per fathom. Hlewitt's Shaft: In the 230 west the lode is 4 ft. wide, yielding 1½ ton of copper ore per fathom. The lode in the 210, west of shaft, is 4 ft. wide, producing ore to dress. The lode in the 170, west of Richards's shaft, is 1½ ft. wide, and north 15. per fathom for tin. We hope to complete the masonry for the stamps and engine this week. There are employed this week on pitwork 179 men and boys; on tribute, 74 men and boys; at surface, 60; total, 313.

CWM DWYFOR (Copper and Silver-lead).—N. C. Moreom, May 14: A very great improvement has been the result of our driving in the 1st level, east of the south cross-cut, since last report; the lode is about 2 ft. wide, yielding some very good stones of lead, and 1½ ton of copper ore per fathom. No change has taken place in the level east of the north cross-cut since last report.

CWM ELAN.—W. Goldworthy, May 13: There has been no lode taken down in the 20, east and west of shaft, since the setting day; we shall strip down the same in a few days hence, when I shall be able to give the value of the lode as far as extended at each point. I have stopped the drive going west in the 20 east, and have put the men to stop the back of same level. The stopes in general are looking much the same as last reported on. On Thursday we shipped the parcel of lead (12 tons) for the buyers of same.

DE BROSKE.—T. Hodge, May 11: I was at the mine on Saturday last in order to press things forward. We are going on pretty well with our surface work, yet not quite so fast as I wish. My son will go to the mine again to-morrow. I have offered the carpenter and miller to do the work of the mill if they will get the dressing machinery in motion by the end of present month.

DEERPARK.—J. Goldworthy, J. Bucknell, May 9: The sinking of the engine-shaft below the adit level is being forced with all speed; it is now down between 8 and 9 fms. The stratum is a light blue clay-slate, congenial for the production of mineral; good progress is being made. The masons are busily engaged in building balance-bob pit; the carpenter's work is nearly completed. The engine and other machinery are in good condition and working well.

DENBIGHSHIRE CONSOLIDATED.—John Pryor, May 14: There is no change in the 112 east. In the 112 west the lode has become quite settled, which leads us to expect the great junction of veins. The lode in the 66 west will produce 1 ton of lead, about the same quantity of ore as it did last month. The junction shaft is down 25 yards from surface, and in good sinking ground. We have not cut the lode, nor do we expect to at present, but there is a great change in the ground, and we meet with a little ore every day. This, to my mind, is very promising for the future. We have no other change to notice. Our winding engines are now in good order, and work better than ever.

DIKKE WALLS.—Wm. Skewis, E. Dunstan, May 11: On Saturday we set 10 pitches to 44 men, at 10s. in 17, and one to four men, 8s. in 17. Also five pitwork bargains to twelve men, at 1s. and 3s. 10s. per fathom. All the drawing, filling, and landing is set to day at 4d. per fathom at the engine and Mathew's shafts. Mathew's shaft is being cleared as fast as possible, and will be finished in a few weeks. At surface we are now engaged in fixing tramroads to take the stuff to the stamps with all speed, and this will be continued until completed. All other matters are going on satisfactorily. We to-day sent 8 to 8½ tons of tin.

DYLIFFE.—E. Evans, E. Rogers, May 13: Dyliffe Lode: The shaftmen are engaged fixing the pumps in the boundary shaft, which will be completed as early as possible. In the stope in back of the 105 the lode maintains its value, worth 24s. per fathom. In the 40 end, driving east, the lode is greatly improved, being at the present time worth 24s. per fathom. In the various other points of operation there is no alteration worthy of notice.

EAST BALLESWIDEN.—T. Trahair, May 13: The lode in the 30 end, west of engine shaft, on the flat lode, is looking well, and likely to well remunerate the company for their outlay. The stopes in the back of this level are looking just as last reported. The lode in back of the 20, on the Rose lode, is still large, saving work for tin. The stamps and machinery are working well.

EAST DARREN.—May 12: Skinner's shaft: At the 118 we have completed cutting pit, and men now engaged in dividing the shaft from the 104 preparatory to sinking. In the cross-cut south of the 68 we have intersected the south part of the lode, which is small and yielding but little lead, being disordered by a sort of channel of ground to the east of which in the rise the lode will yield 1½ ton of ore per fathom; this point will soon be commenced, and give good ventilation. The stopes and pitches throughout the different levels are without change to notice. Our machinery is in good working order; drawing and dressing progressing regularly, and have to-day sampled 50 tons of silver-lead ore, for sale on the 25th inst.

EAST WHEAL RANSETT.—R. Pryor and Son, E. Adams, May 13: There has been no change in the underground department of this mine within the past week worthy of notice. The tribute pitches continue to look well, and are producing good quality work for tin and copper. Friday next being our pay and setting day, a full report shall follow.

EAST WHEAL GRENVILLE.—E. Hosking, W. Bennetts, May 9: There is no change since our last.

EAST WHEAL GRENVILLE.—E. Hosking, W. Bennetts, May 14: In the 130 west of engine shaft, we have cut the cross-course, which has disordered the lode. The 120 cross-cut north of the 130 cross-cut, the lode in the 110, west of engine shaft, is 2 ft. wide, and worth for tin and copper 7s. per fathom; the ground in this end is easier, and the lode looks very kindly. The ground in the 110 east has greatly changed, and we expect a better lode shortly; it is now 18 in. wide, producing saving work for tin, and some rich copper ore. The lode in the 96 east is 2 ft. wide, and worth 8s. per fathom. In consequence of the water the winze below the 95 is suspended, and the men are now stopping above the 95, where the lode is worth from 12s. to 15s. per fathom. The stope below the 85 fm. level east is worth 8s. per fathom.

FRANK MILLS.—J. Rowe, jun., N. Addams, May 13: The winze in bottom of the 45 is down 5 fms.; lode of a promising character, producing 4 cwt. of lead ore per fathom. We intend to put out a cross-cut at the 60 so as to get under this winze to open up this piece of ground for stopping as soon as possible. We have set the 45 to drive north, on east lode, which is producing saving work. We have three stopes working in the back of the 45, which are each producing 8 cwt. of lead ore per fathom. The ground in the cross-cut from the 72 south is of a very promising character for the production of lead. We have put six men to drive a cross-cut east from the 72 north, where the ground is presenting very favourable indications of our meeting with lead ore in a very short time. We have no change in our tribute department, and our machinery is in good working order.

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FURZE HILL (Tin).—W. Dodge, May 14: No. 1, North Lode: We have cleared and secured the 40 fm. level as far east as the point where the ancient workings of the 45 is down 5 fms.; lode of a promising character, producing 4 cwt. of lead ore per fathom. We intend to put out a cross-cut at the 60 so as to get under this winze to open up this piece of ground for stopping as soon as possible. We have set the 45 to drive north, on east lode, which is producing saving work. We have three stopes working in the back of the 45, which are each producing 8 cwt. of lead ore per fathom. The ground in the cross-cut from the 72 south is of a very promising character for the production of lead. We have put six men to drive a cross-cut east from the 72 north, where the ground is presenting very favourable indications of our meeting with lead ore in a very short time. We have no change in our tribute department, and our machinery is in good working order.

GAWTON.—G. Rowe, G. Rowe, jun., May 9: During the past week our shaftmen have been principally engaged in drawing to surface the spare pitwork in the 40 end, which are now putting in the 150 ft. level. The shaft is in regular course of sinking, with a full staff of men, and the ground good for progress. The lode in the stope in the back of the 70 fm. level is worth 15s. per fathom. All the other tribute bargains are suspended.

GOISEDD AND CELYN LEVEL.—Wm. Edwards, May 14: Our operations are looking quite as favourable as when last reported. The Goisedd vein seems on the improvement. We sold 10 tons of ore at to-day's ticketing.

GREAT LAXEY.—J. Redcliffe, May 13: The winze sinking below the 210 in the deep mine is down to the 220 fm. level, and driving south from it towards the 40 end, which is now putting in the 150 ft. level. The shaft is in regular course of sinking, with a full staff of men, and the ground good for progress. The lode in the stope in the back of the 70 fm. level is worth 15s. per fathom. All the other tribute bargains are suspended.

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turning out a good quantity of lead; I value its present yield at 3 tons per fathom. The lode in the No. 2 east continues large, and contains a good mixture of lead and blende. The 79 yard level, driving north-east, does not look quite so well as last reported, and the ground is becoming much harder. I purpose sinking a little in the bottom of the level to see if there is any lead gone. In the adit level the important improvement has taken place where we commenced to drive it a fortnight ago; the lode was small and poor, it has now opened out to 2 ft. wide, and produces nearly sufficient lead to pay the expenses of driving. I like its appearance much, and think we are entering into a good run of ore ground. Yesterday we sampled 40 tons of lead, for sale at the Holywell ticketing to-morrow, and in all ready for delivery.

NORTH POOL.—W. C. Vivian, F. Clymo, May 14: We are pleased to inform you that the 40 fm. level cross-cut has again become very favourable for progress, so much so that we think we shall drive from 7 to 8 fms. per month, whilst the rock continues as it is. Both the cross-course and the adjacent rock present good indications for copper, and we meet occasional spots of this ore.

NORTH ROSEWARNE.—E. Hosking, W. Bennetts, May 14: The shaftmen have completed their bargain to cut down shaft to adit, and are now cutting pit preparatory to sinking.

NORTH TRESKERBY.—R. Pryor and Son, May 12: We have no change in any part of the mine calling for remark since last report. In the driving of the deep adit cross-cut the ground is not quite so favourable for progress as was last reported.

OLD BOTTLE HILL.—R. Unsworth, May 13: Jones's pitch is set to four men, at 14s. in 17, the takers to pay all costs. The cross-cut at the bottom of Round's shaft is set to six men, at 7s. per fathom, to hole to the main lode. There is every appearance that we shall have a very productive lode both for tin and copper as soon as we can hole to the main lode and are able to drive south to cut the Bocking house lode.

OLD TREBUBGETT.—Wm. Hancock, Wm. T. Bryant, May 14: We have set the engine shaft to sink below the 80, to nine men, to make it 10 fms. below the present depth, at 19s. per fathom; if completed in 14 weeks from Monday next we have 10s. premium. We have also set the 70 to drive north of the shaft, on eastern part of the lode, by four men, at 8s. per fathom, and hope in a few fathoms to get into productive ground, the former company had a good run of ore in the level over the 60, and sunk under the level. The lode in the 60 fm. level is improving; we have about 3 ft. more to drive this end to get under the winze sinking below the 70; in the latter we have had a good drop of water to contend with, but hope to communicate it in a few days more. In the 70 south the lode is worth about 15s. per fathom. By the latter part of next week we shall have put in the stope in back of the 60, where it was communicated to the west drive towards it from No. 3 winze; and as soon as the stuff is cleared we shall resume driving the end on south, in a good ore lode. The stopes, taking one with the other, are much the same as to value as at our last setting report. We shall fix the 13 inch plunger lift and the column to-morrow and Saturday.

OLD TREBUBGETT.—Wm. Hancock, Wm. T. Bryant, May 14: We have set the engine shaft to sink below the 80, to nine men, to make it 10 fms. below the present depth, at 19s. per fathom; if completed in 14 weeks from Monday next we have 10s. premium. We have also set the 70 to drive north of the shaft, on eastern part of the lode, by four men, at 8s. per fathom, and hope in a few fathoms to get into productive ground, the former company had a good run of ore in the level over the 60, and sunk under the level. The lode in the 60 fm. level is improving; we have about 3 ft. more to drive this end to get under the winze sinking below the 70; in the latter we have had a good drop of water to contend with, but hope to communicate it in a few days more. In the 70 south the lode is worth about 15s. per fathom. By the latter part of next week we shall have put in the stope in back of the 60, where it was communicated to the west drive towards it from No. 3 winze; and as soon as the stuff is cleared we shall resume driving the end on south, in a good ore lode. The stopes, taking one with the other, are much the same as to value as at our last setting report. We shall fix the 13 inch plunger lift and the column to-morrow and Saturday.

OLD TREBUBGETT.—Wm. Hancock, Wm. T. Bryant, May 14: We have set the engine shaft to sink below the 80, to nine men,

IMPROVEMENT IN ELECTRO-PLATING.—**MR. S. L. DELALOT**, of Paris, has patented an invention, which consists in plating or coating iron with silver or gold directly and without the aid of copper, as now effected by electricity. To compare it with the composition which it is necessary to make the iron according to the following formula:—To every 1000 lbs. weight of iron rendered liquid by heat heads 12 lbs. of nickel and $\frac{1}{2}$ lb. of manganese. The iron thus prepared may then be plated or coated with silver direct by a silvering mixture, composed as follows:—To every 100 pints or pounds weight of water he adds 2 ozs. of azotate or chloride of silver (very neutral), 2 lbs. of bicarbonate of soda, 6 ozs. of cyanide of potassium or sodium, and 10 drops of cyanhydnic acid. To coat iron prepared as above with gold direct Mr. Delalot employs a mixture composed of 100 parts of very pure gold or pounds of Mr. Delalot uses a mixture composed of 100 parts of gold (neutral), $\frac{1}{2}$ lb. of bicarbonate of soda, $\frac{1}{2}$ lb. pyrophosphate of soda, 1 oz. of cyanide of sodium, and 2 drops of cyanhydnic acid. To silver or gild the iron with the foregoing mixtures, the iron must first be rubbed with the hand and then immersed in a liquid, composed

such a standard many Cornish mines would do very well. The following are the cloag

Chontales, 12s. 6d. to 17s. 6d.; on account of the feast days, and which natives do not work, the supply of quartz has been limited, and the gold produced 300 ozs., realised 841*l.*, against cost of 656*l.* profit, 185*l.* Cedar Creek, 2 to 2½; the advices show a profit 15,000*l.*; the returns, 29,500*l.*; expenses, 14,500*l.* Almadá and 10 to 16s. 3d. to 18s. 9d.; the mine made a profit in the month

A THOROUGHLY-EFFICIENT MINING AND ENGINEERING
CLERK and BOOK KEEPER will soon be OPEN to an ENGAGEMENT.
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COAL MINES REGULATION ACT, 1872.

EXAMINATIONS FOR MANAGERS' CERTIFICATES OF COMPETENCY.

DISTRICT UNDER THE CHARGE OF J. P. BAKER, Esq., H.M. INSPECTOR OF MINES.

NOTICE IS HEREBY GIVEN, that an EXAMINATION for MANAGERS' CERTIFICATES OF COMPETENCY, under the above-named Act, will be HELD on the 1st day of June next, and CANDIDATES intending to present themselves at such EXAMINATION must, on or before the 25th day of May, notify such intention to the Secretary of the Board of the above-mentioned district, from whom all information as to particulars can be obtained.

By order of the Board,

WM. BLAKEMORE, Secretary,
Heathfield Villa, Wolverhampton.

Notices to Correspondents.

*. Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; it then forms an accumulating useful work of reference.

ABERDOVEY MINES.—As I do not receive any reply to my enquiries from the liquidator of this company, I feel compelled to appeal to those who may know the real state of its affairs for information to which all shareholders are entitled.—**AN OLD SUBSCRIBER.**

SR.—Would any reader kindly give the following information?—The City of London dues on each ton of seaborne coal brought into the port of London; and the dues per ton on coal brought otherwise—say, land carriage. Also, about the average freight per ton of seaborne coal from Hartlepool.—**CONSTANT READER.**

SR.—I am informed that oil lamps are mostly used in lieu of candles underground in the mines of Scotland and on the Continent; could any of your readers inform me what kind of oil and description of lamp is best, and where they may be obtained? Such information would oblige—**ANTI-TALLOW CANDLER.**

STEAM HAMMERS.—The Emperor of Russia has had working in his own factory at Oboloff Steel Works, St. Petersburg, for some years a steam hammer nearly twice the size of the one erected at Woolwich. The steam cylinder of the Russian hammer is no less than 6 ft. 6 in. in diameter. This hammer was converted by Messrs. Thwaites and Carbott, and sent out in 1869. It is a 50-ton hammer. Sir W. Armstrong has had in operation for twelve months a 30-ton steam hammer of their make for hammering the gun coils, with which he is capable of forging guns up to 100 tons in weight, or even larger. The only other 50-ton hammer in the world is in the possession of Krupp, of Essen, constructed at his own works, and which has been in operation many years.

"Contango," as used in the City, is understood to mean the rate of interest paid for carrying a transaction forward from one settlement to another—that is to say, for an interval of delay in paying for stock purchased; while "backwardation" implies a rate paid by a seller to a buyer for being allowed, when stock is scarce, to delay the delivery of that which he has undertaken to supply.

SHARE DEALING.—We never interfere in the sale or purchase of shares; neither do we recommend any particular mine for investment or speculation, or broker through whom business should be transacted. The addresses of most of the latter appear in our advertising columns.

Received.—"M. W."—"C. S."—"A Shareholder" (Pennerley).—"E. R. R." (Sunderland).—"M. P."—"Justice" (Great North Carolina).—"Another Reader."—"Euclid."—"J. T." (Woodbridge).—"Shareholder" (Tybwyd). Should write to the secretary—"R. T."—"Amicus" (Edipole).—"Miner" (Salop). Yes—"T. R."—"E. W. L."—"Caution."—"Shareholder" (Pensilva). Next week—"Antrim."

AMERICAN SUBSCRIBERS.—In reply to several enquiries, it may be stated that subscribers in the United States can be supplied with the *Mining Journal*, post free, at the price of \$8 50c. gold per annum, payable in advance, by remitting to Mr. D. Van Nostrand, publisher, and importer of scientific books, &c., Murray street, New York; or, direct to our Office, 26, Fleet-street, E.C.

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, MAY 16, 1874.

THE MINERS' WAGES QUESTION.

The long-expected turn of the tide in connection with the price of coal and colliers' wages has at length set in, evidently to the great discomfiture of many of the leaders, as well as of the entire of the rank and file, of the various Associations of Miners throughout the kingdom. All persons connected with our collieries freely admit that they have enjoyed a long season of prosperity, such as the most sanguine never could have anticipated, yet the men refuse to submit in any way to the great change which has taken place during the last few months in the state of the coal trade. Large profits as well as large wages combined, during the greater part of last year at least, to send up coal to an almost prohibitive cost, and, as we frequently pointed out would be the case, ultimately led to a great decrease in the consumption and a most marked decline in the price. This has been the case recently to such an extent that the trade is fast coming back to something like what it was in the early part of 1872, when wages as a rule were from 50 to 55 per cent. less than they now are. It will be recollected that every increase made in the charge for coal was either preceded or immediately followed by an advance of wages, on the simple ground, as the men stated, that they were entitled to share in the prosperity of the trade and in the vast profits made by their employers. Admitting that such grounds for increase of wages are sound and tenable, it surely follows that when there is a great falling off in the demand for coal, with comparatively trifling profits, that wages should follow in the same direction. But this is what the miners are opposing most vigorously. They know that business is bad, and the production of coal in excess of the consumption, yet this state of things they have attempted to meet by expressing a desire to limit the output at the collieries. A proposal so intensely selfish, and so greatly opposed to the public interest, not having been acquiesced in by the employers, the men have resorted to "striking," believing that by so doing they would be able to prevent a reduction of their wages. In this they have failed, for despite the strikes in several districts the colliery owners in others have given notices of reductions, stating that in the event of the proposals not being accepted they were prepared to let their pits lie idle. This was the case more particularly with respect to Scotland, where some of the leaders are in favour of a general strike. But we are glad to find that Mr. Macdonald, M.P., who has worked so energetically for more than a quarter of a century for the Scotch miners, is opposed to any such course. He said it could not be successful, and could only end in "the miners' families being starved into submission." He refused, under the circumstances, to leave London to advise with them, but leaves, as he says, "their present advisers to complete the work of ruin and confusion."

In South Durham the miners have also shown a disposition to oppose the acceptance of the 10 per cent. reduction agreed to by a majority of the delegates. But seeing that it was inevitable they then proposed to their employers that the pits should only work five days a week, which, we need scarcely say, was indignantly refused. The Cleveland ironstone miners, too, having risen in insubordination to the terms accepted by the executive, struck on Saturday last against a reduction of 12 per cent. Of the 15 lodges which met at Saltburn-on-the-Sea on Saturday, only one agreed to accept the reduction of the council decided in favour of it. In the course of the discussion which took place, it appears that the executives expressed their regret that the lodges had not instructed their delegates to vote in favour of the reduction being accepted. It would thus appear that the executive of the miners instead of leading the men as they have hitherto done, have actually to follow them now in not a few instances. The dispute in the Forest of Dean has been arranged, as has that in Somersetshire, but at some of the collieries near Bristol notice of a reduction of 20 per cent. has been given, to commence in June. Despite the opposition, it may reasonably be assumed that the dispute in Leicestershire and Warwickshire will terminate by the masters' terms being accepted. At Barnley the men have given up the contest for a very good reason—the exhaustion of their funds, but as a set off, the Amalgamated Association of Miners, with Mr. Halliday at its head, is fighting a heavy battle in Staffordshire, and at a cost of something like 6000s. a week. The North Wales, as well as members in other districts asked for the support of the Association in striking against reductions, but Mr. Halliday assured them the executive had as much work on hand as they were at present capable of managing. In Derbyshire there has been

several strikes during the last couple of months, and a few days since the men at the Pinxton Colliery, of Messrs. Coke and Co., brought out their tools in preference to accepting a reduction of 15 per cent. In South Yorkshire the notices given by the employers it is expected will be amicably arranged. That the strikes we have alluded to can only in the end tell to the great disadvantage of the men scarcely admits of a doubt. The leaders evidently do not recognise the force of the remark so often made, that a strike is a very foolish thing whenever it is made with a view to raising wages above that market rate which is rendered possible by the demand and supply. Now, coal is at least 50 per cent. lower than it was last year, yet the men are simple enough to think that wages under such circumstances should remain undisturbed. They also evidently cannot see that prices are still pointing in a downward direction.

For our own part we have no hesitation in stating that not only will the present price of coal have to come down considerably, but wages as well. For this the men and their leaders should be prepared. That our views as to the future of the coal trade are by no means speculative we will adduce a few facts in support of them, some of which we feel assured will astonish not a few of the colliery owners themselves. In nearly all parts of the kingdom collieries are now being opened out, although the production is in excess of the consumption, and but few persons know anything like the rate at which coal fields are being opened out. The productive power of Yorkshire in particular has very much increased during the last few years, for we find that whilst in 1868 the quantity raised in that county was 9,705,000 tons, in 1872 it had increased to 14,576,000 tons, or no less than 33 per cent. in four years. But that rate of increase, large as it is, is now being greatly exceeded, for we have it on the highest authority that in 1873 the Government Inspector had notice that during that year no less than 30 collieries had been sunk to the coal, whilst he also received notice that 94 were about to be opened out. Now, as many of those new places will raise 1000 tons of coal a-day, it is not saying too much that the increased productive power of Yorkshire will be upwards of 50 per cent. in 1876 over what it was in 1872. In the southern part of the same vast coal field some 50 or 60 new collieries at least are being opened to the Top-haul, as well as the Black-shale seams. If we take the entire Midlands, from its northern extremity to Nottingham, and include Warwickshire and Leicestershire, instead of the gross output being 25,236,000 tons, as in 1872, it will not be less than 36,000,000 tons in 1876. This increase will be due in a great measure to the very high price of coal in 1872 and 1873, and which induced such a large number of capitalists to embark in the trade. In almost every other part of the kingdom the same activity has prevailed in the opening out of collieries, whilst we have every promise of a large field of the Staffordshire Ten-yard coal in operation in the course of two or three years. We believe that we are within the mark when we say that the productive power of the country in coal at the commencement of 1877 will be one-third more than it was in 1872—so as to ensure a vast surplus over our requirements. It may be asked where the colliers are to be found to work these new concerns. Our answer is that machinery for cutting coal—now being adopted at a great many places—will have to come into more general adoption, as mechanical means will be found far more economical than manual power. In addition, it may be said that in the making of pig-iron and in the raising of steam the quantity of coal required is very much less than it has been, owing to the many improvements completed during the past year. The question hereafter, in our opinion, is more likely to be what we are to do with our surplus coal than how we are to economise it for future generations. These facts should not be overlooked either by our colliery owners or those who are now seeking to keep up wages as they are at present.

OUR COAL EXPORTS.

Some contraction was observable in our coal exports in April, and they presented, upon the whole, some falling off as compared with April, 1873. As regards both France and Germany, there was some little weakness in the comparative shipments of April. Thus, we sent the Germans 190,000 tons of tons of coal in April, against 194,244 tons and 212,987 tons in the corresponding months of 1873 and 1872, while the exports to France in April were 173,736 tons, against 195,798 tons and 164,356 tons in the corresponding months of 1873 and 1872. Among the other countries to which we sent less coal in April may be mentioned Russia, Sweden, Denmark, Holland, and Italy, while our coal exports increased in April to Spain, Turkey, Egypt, Brazil, and British India. For the first four months of this year our coal exports, notwithstanding the decline which took place in the April shipments, presented some little progress, having risen to 3,975,769 tons, against 3,714,356 tons in the corresponding period of 1873, and 4,062,692 tons in the corresponding period of the year 1872. To these aggregates Germany contributed 482,474 tons, 387,319 tons, and 446,822 tons respectively; and France 874,449 tons, 770,651 tons, and 874,654 tons respectively. Spain, although possessing coal supplies which might be turned to excellent account if peace could be restored to her unfortunate war-torn population, has this year ranked fourth as a consumer of English coal, Italy occupying the third place. In addition to the 3,975,769 tons of English coal exported in the four months ending April 30—and the expression "coal" includes coke and patent fuel—there were 968,374 tons shipped for the use of steamers engaged in the foreign trade, so that in the first third of this year the movement of coal from our shores was at the rate of no less than 14,832,429 tons per annum, or nearly 15 per cent. of the whole production. This demand for coal for steamers engaged in the foreign trade is a demand of comparatively recent growth, and it has helped to carry coal to its still unduly high price. After all, the alleviation which has taken place in the cost of English coal has been of no great importance, the 3,975,769 tons exported in the first four months of this year having been worth 3,894,053s., while the 3,714,356 tons exported in the first four months of 1873 were valued at 3,986,679s. We make this remark parenthetically, and returning to the large shipments of coal effected for the use of steamers engaged in the foreign trade, we can but add that it is disappointing to find that the opening out of new sources of supply in various parts of the world has not assisted more materially to curtail such exports.

The French demand for our coal promises to be very considerable this year, the imports of English coal into France in the first four months of this year having moved on at the rate of 2,353,347 tons per annum. Time was when a French consumption of 1,000,000 tons of English coal per annum was thought a good deal; and 20 years since—that is, in 1854—we only sent the French 708,830 tons of our coal. In the last 20 years the consumption of English coal has trebled in France, in spite of all the efforts which the various Governments which have ruled the French during the last two decades have made to develop the indigenous coal resources of France. Those efforts have not been unsuccessful, the production of coal in France having been carried from 4,800,000 tons in 1852 to 10,100,000 tons in 1862, and 15,000,000 tons in 1872. France also imports coal freely from Belgium and Germany; and yet in spite of largely increased Belgian, German, and home supplies, she is fain to take more and more considerable quantities of English combustible. There can be but one explanation of this—that in France, as in most other countries, the consumption of coal (principally, no doubt, in consequence of the very great development of steam-power) has been growing at a very rapid rate during the last 20 years. The same causes have produced the same results in other countries as well as in France, although those countries, like France, have also made persevering efforts to develop the coal resources with which they have been endowed by nature. In all countries steam-power has been growing apace; and in spite of every exertion which coal-owners may have made to keep pace with it, it began in 1872 and 1873 to outstrip the means of coal production. Hence prices rose to an extraordinary, and indeed unprecedented, point. The natural result was to attract more capital to what had become the very lucrative pursuit of coal mining, and last year probably the coal production of Europe was once more brought on to a level with, if it did not actually exceed, the coal consumption of Europe. Prices towards the close of 1873 began accordingly to ease off, and to descend to some little extent towards their old level; but, as we have already observed, they are still very high. It is obviously extremely diffi-

cult to bring new appliances into operation all at once, however skilfully they may have been devised; it also takes time to develop new workings, and a still more formidable obstacle has forced itself in the way of coalowners during the last few months in the shape of well high incessant labour difficulties. Hence even now our coal future is troubled.

THE DUKINFIELD COLLIERY EXPLOSION.

The Coroner's enquiry touching the deaths caused by the disaster last month at the Astley Deep Pit, Dukinfield, stands adjourned until Whitsun week. A fortnight ago there were hopes that the inquest might be closed last Saturday, and three days' sitting were arranged for last week. On the first day the determination to sit early and late, in order that the investigation might be brought to a speedy close, was most commendable; next day it was evident that if the business was to be transacted in two days it would simply be by scrambling through it, and the coroner and jury, therefore, wisely determined to take two short sittings for that week, and then adjourn to the only week in which the professional men engaged in the enquiry were all at liberty.

It is rather remarkable that the adjournment should have taken place at a point where the interest of all who are engaged in the enquiry has been raised to a pitch than at any other period. Some of the jurors continue to try their hands at all kinds of side issues, but the experienced men present at each sitting are gradually reducing their examination of the witnesses to a narrow compass, and it is very evident what will be the great item in the enquiry. It is necessary, however, in order that something like a lucid explanation of this matter may be given, to go back to the sitting a fortnight ago, when David HOLMES, the chief underlooker, whose experience at this colliery extended to the time when the pits were sunk, gave his evidence. He related how 9½ or 10 years ago a great fire broke out in the mine where the recent disaster has occurred, and in the very half-moon tunnel which has been the seat of the explosion now being enquired into. The fire, he said, raged for a fortnight, and when it was extinguished there remained in the roof of the tunnel a huge cavity, the filling in of which gave deep concern to those who then held the management. The work was done by driving at a distance of about 15 or 20 yards above the mine in which the tunnel is situated, a level from the shaft to a point above the cavity. This level was 36 yards long, and the roof of the tunnel having been made good, and an opening having been made into the cavity from the level, "stuff" was wound up the shaft, wagged into the level, and tipped into the cavity, until to all appearance it was solidly filled. HOLMES further told how in, as he positively affirms, the time of the manager (Mr. WALSHAW) who preceded Mr. HILTON, the gentleman now in charge of the colliery, gas was found in this level.

Very circumstantially HOLMES related to the jury the finding of this fire damp, of whose presence he informed Mr. WALSHAW. HOLMES says the gas was visible in the lamp from the shaft, that Mr. WALSHAW stood in the cave while it was pointed out to him, and the same night ordered the level to be sealed up with bricks and mortar. For 4½ years this level has so remained, and when Mr. HILTON was placed in the box there was no small sensation—as sensation goes in a snug and orderly Court like this—when he swore that of this sealed level he had been in absolute ignorance until after the explosion last month. For the fact cannot be disguised that this level formed a compact and not admirably arranged, but being arranged, where gas might accumulate till the opportunity was afforded for its being allowed to enter the workings and do foul work. And it was this issue of gas into the tunnel after the fall, or with the fall, that had done all the mischief, and until this piece of evidence came out there was great mystery as to where so near the main intake it had found lodgment. Immediately following Mr. HOLMES's evidence was that of his predecessor, Mr. WALSHAW, and he swore that he never heard of the level, and that he had never ordered it to be bricked up. Had he been told to deal with it he said he should have put up with it to be vented. At the next sitting was produced a witness who declared that he received from Mr. WALSHAW the instructions to brick up the opening, and that he did brick it up. He knew at the time that it contained gas, but he obeyed the orders of his superior, and made the stopping. There the matter stood when the enquiry was adjourned, and, as may naturally be supposed, the conflicting testimony in such a plain matter of fact piece of work as the bricking up of this opening was the main topic of conversation amongst the groups into which the enquirers formed themselves before separating for three weeks.

As to the enquiry generally, it is remarkable as being the first of any magnitude under the new law, and there can be no doubt that it marks an extraordinary change in the nature of these investigations. The appearance of eminent counsel (Mr. HORATIO LLOYD) to watch the proceedings on behalf of the Crown is an innovation in the Lancashire and Cheshire coal field; and assuredly the searching cross-examination to which the witnesses have been subject contrasts remarkably with the plain and practical sort of questioning which in other enquiries issued from the Government Inspector, or Inspectors, who were present. At this enquiry Mr. LLOYD and Mr. BELL (Her Majesty's Inspector for West Lancashire and North Wales) are, in point of fact, a special Government Commission, although they are not called by any such title, but simply appear for the purpose of assisting Mr. WYNN, the Inspector of the district. An episode, probably unique in colliery inquiries of this particular kind, was the warning which the Coroner felt called upon to administer to the manager (Mr. HILTON), when he reminded him that his position was one of great responsibility, that he was bound to see that all the arrangements were carried out with perfect safety to the men, and told him that he was not bound to answer any question which might criminate him in the event of his being put upon his trial for manslaughter; for whatever he might say would be taken down in writing, and might be given in evidence against him. The terms of the warning were strangely reminding of the caution administered in petty law cases in Police Courts, and there would probably have been no mark of astonishment on the face of the legal gentlemen present if the witness had been further told that he had nothing to hope from any promise of favour, and nothing to fear from any threat that might have been held out to him to make any admission or confession of his guilt. And it must be borne in mind that there was at this time no semblance of any charge against Mr. HILTON, who acquitted himself admirably in a long and most trying examination. All the justification that could be found for such a warning was to be found in the peculiar position the manager occupies by recent legislation. It must not be presumed from these remarks that the Coroner's caution was administered in any offensive way; undoubtedly the Coroner only did his duty, and in fact the episode would call for no comment save for this fact, that it seems to imply a degree of responsibility which is sufficient to make colliery managers tremble.

The Court itself could not be more suitably constituted for its purpose under existing laws. The Coroner maintains its dignity admirably; there are not, apparently, many practical men on the jury, but the majority of the inexperienced maintain learned and commendable silence. Than Mr. LLOYD more efficient counsel could not have been commissioned by the Home Secretary; in the interests of the proprietors of the colliery Mr. MASKELL PEACE (the secretary of the Mining Association of Great Britain) is specially retained, and his experience in enquiries of this kind, and his complete mastery of his work have been unmistakably evident at every sitting; for the manager appears Mr. W. C. LORR, and the relatives of the deceased are represented by Mr. J. LORR. In addition to the Government Inspectors—Messrs. WYNN and BELL, Mr. S. GILROY, the assistant Inspector for the district, is in attendance; there is a host of reporters, and the background of the Court, which is held in a chapel attached to Dukinfield Lodge, is occupied by a small crowd, who bear on their faces the indelible and unmistakable marks of the toilers in the mine.

The Court calls for no complaint, but is not the foundation of the enquiry a bad one? Should not an important investigation like this take place before a commission technically competent to deal with the matter? Why should managers of railways be certain of a fair hearing before a fully qualified man, and colliery managers be left to the tender mercies of unskilled labour? Captains of ships know they will receive a fair hearing before nautical assessors, but managers of mines may not always have to deal with so courtly a Coroner, and as it would at present appear, so fair a jury as are enquiring into the Dukinfield disaster.

SOCIETY OF ARTS.—The Albert Gold Medal of this society, instituted to reward distinguished merit in promotion of arts, manufactures, and commerce, has been awarded for the present year to C. W. SIEMENS, D.C.L., F.R.S. "For his researches in connection with the law of heat, and the practical applications of them to furnaces used in the arts; and for his improvements in the manufacture of iron; and generally for the services rendered by him in connection with economisation of fuel in its various applications to manufactures and the arts."

RATING OF METALLIFEROUS MINES.—Although, owing to misapprehension on the part of the executive of Ladywell and Roman Gravel Mines, the poor rates claimed by the parish of St. Olave have been paid; the bringing of the case before the Marton magistrates cannot fail to be of future benefit to the shareholders, and indeed to mine shareholders generally. The case had been adjourned from the previous Petty Sessions, but the representatives of the mines not having taken the proper steps for appealing, had no alternative but to pay the rates. One of the magistrates, Mr. R. Jasper More, remarked that though it was not the province of magistrates to enquire into the legality of a rate, yet, as the subject was discussed at the last meeting, he wished to say that in the latest editions of "Bainbridge on Mines," and "Barn's Justice," it was stated that neither lead mines nor the machinery or buildings connected with them were rateable. The Shropshire mining companies had neglected to appeal because the Shilbeach Company had rightly paid the rate, the distinction in their case being that the buildings rated were used for smelting. This had misled other mining companies into supposing that the rate was legal, which was maintained from the case of "Guest v. East Dean," but which, in the opinion of one of the chief authorities from the East Dean district, was no precedent for a lead mine. Mr. Headley, of Sunderland, who had assessed these mines, has had his assessment successfully appealed against in every instance in which he had tried to impose a similar rate before. He hoped the Forth and Guardians would not press their rating again until it was seen on what principle the Government would assess mines, for he felt sure the principle would be different. He believed the rate would fall on the owner, not on the company, so he was disinterested in his remarks. The case has excited considerable interest in the district, and, referring to the matter, the *Sheffield Free Press* says:—"We call the attention of our readers to the lead mining district of South Shropshire to the remarks of Mr. Jasper More, at the Marton Magistrates' Court, on the late lead mines, the Assessment Committee of the Forth Union, or their clerk, to rate lead mines, or their machinery and buildings, which have never been as yet rateable by law. The cause of their exemption is clear—that it is contrary to public policy to impose such a charge on enterprises as lead mining by rating lead mines in the same way as coal. It appears that the clerk to this Board of Guardians employed a stranger to Shropshire, who had failed in such attempts elsewhere, to try to im-

umberland coasts. Should the coal rise rapidly eastwards, or should large faults be met with in that direction, the width of the coal field might be seriously reduced. The result of the explorations here will be watched with much interest.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

The Iron Trade is, of course, in a very disturbed state, and but little business of any kind is done. The finished iron makers are in a better position at present than they have been for a long period, as they have reduced the price of

The Chemical Trade has been depressed a long time, and owing to this depression and consequent low prices, with at the same time greatly enhanced prices of fuel, the manufacturers have been compelled to make a reduction of 10 per cent. in wages, but this reduction the men refused to accept, and a large number, upwards of 3000, came out on Saturday on strike. It is, however, expected that it will not be of long duration. —

Telegrams from the Durham mining districts announce that the resolution of the Miners' Council in relation to working five days in the week has been rescinded by 165 votes against 49; that every matter in dispute is now ended, and that it is expected all the pits will be in full work by Monday at the latest. Whether the Cleveland ironstone miners intend to continue on strike is not stated. Should they do so, the fall in the price of coal will be accelerated, since the Cleveland districts, when in work, absorb by far the principal portion of the Durham yield.

REPORT FROM SCOTLAND.

May 13.—There was considerable activity in the warrant market during the latter part of last week; the price fluctuated between 85s. and 89s., and closed on Friday afternoon at 85s. 6d. This week the tone has not been so good; on Monday business was done from 84s. to 80s.; yesterday the opening price was 82s. 6d., and it steadily improved up to 85s. 3l., which was the closing quotation, and to-day, although the opening price was 86s., the market gradually gave way, and business was done to 83s. 6d., which was the closing quotation. The trade remains in a most unsatisfactory state; prices are maintained, not by a healthy demand, but only by the greatly diminished stock and restricted production, while the uncertainty regarding the supplies of iron and fuel tends to increase the existing depression. It is impossible to give definite quotations for the various brands, but good ordinary No. 1 may be quoted 87s. to 90s.;

No. 3, 85s. to 8s. :—	SHIPMENTS.	Tons	14,000
Week ending May 10, 1873	.....	7,372	
Week ending May 9, 1874	.....		6,718
D ecrease	.....		73,309
Total decrease since Dec. 25, 1873.	.....	
Imports of Middleborough pig-iron into Grangemouth:—			
Week ending May 9, 1874	.....	Tons	3,120
Week ending May 10, 1873	.....		1,690
Increase	.....		1,430
Total increase for 1874	.....		22,977

The iron furnaces have only as yet been blown-in to the extent of about 70. Some of the brands are still out of the market, and prices vary with the action of the miners and the operations of speculators. The ironmasters have assumed a very decide! attitude with regard to the 40 per cent. reduction, having absolutely refused to lessen it, and have adjourned their meeting for a month.

Last week, and even this week, the malleable works were borrowing coals from each other, when they were not actually, topped for want of fuel, their own pitmen being out on strike, the price of manufactured iron not being sufficiently remunerative to enable them to purchase suitable coal from the salemasters. Last week a few extra orders were placed, in the fear of prices advancing with the price of pig-iron, but this week prices are very easy again, the North of England people competing very keenly with local makers for all classes of ship iron.

Coals are pretty plentiful, as the salemasters' men are mostly working at the reduction of 20 per cent., but prices are so variable that it is difficult to quote, each buyer doing the best he can for himself. The shipments for the week show a falling off, being 27,870 tons, against 39,194 tons in the same week last year.

REPORT FROM MONMOUTH AND SOUTH WALES.

May 14.—The difficulties which have threatened this district for some time appear now to have begun to set in. Contrary to expectation, there has been a disruption at Cyfarthfa, the property of Mr. Crawshaw, and it is feared that the dispute will not soon be settled. The notice for a termination of contracts was issued at Cyfarthfa sooner than at any other establishment, and naturally if any disagreement at all was to take place it was to be expected at those works. Some of the men, towards the end of last week, agreed to work on at a reduction of 10 per cent., which was conceded, but the general reduction announced is 20 per cent., and this the majority of the iron-workers and iron-stone miners have determined to resist. They were, in fact, under the impression that they have been singled out as a "feeder" for the masters who, with his sanction, have taken advantage of Mr. Crawshaw's independent and wealthy position to try the effect of the 20 per cent. reduction. The workers have, however, determined to treat their work on any reduction as a mere ultimatum, at least, and notice has expired at the other iron-making establishments, so that the employees can agree upon one general course of action. What the upshot will be will, therefore, remain in abeyance until about the end of the current month, but it is understood that many of the workers, if not all, will be willing to accept a 10 per cent. reduction. If this will satisfy the iron and coal masters, then there is a probability that there will be little or no stoppage of operations; but if they persist in a 20 per cent. reduction, then there is nothing to be apprehended but a severe struggle.

As might be expected under the present unsettled state of things current, business only gets more and more dull. Whatever orders buyers may have in their hands they cannot place many more until manufacturers and their men have come to some definite understanding in regard to the wages question. In this cloud of confusion one cannot see what the real position of the trade is, but there is so much reason for believing that there would not be so much room for complaint if capital and labour could pull together better than they do. Some of the biggest ironing-machine firms in the Principality are now about to decline some orders that were offered to them, and it is stated that the contracts are, consequently, transferred to Belgium. There is no doubt that the Belgian makers are competing keenly.

The process of blowing out has been commenced at the Forest Steel and Iron Company's works at Treforest, a large number of the men having refused to resume work on the 20 per cent. reduction which has been enforced.

The lock-out in the Tin-Plate Trade appears to be as far from terminating as ever. The masters have declined to confer with the men unless they withdraw unconditionally all the claims which they have preferred. After holding a number of meetings the men have come to the conclusion not to return to work on the old terms, and here the matter stands.

A downward tendency is still to be noticed in the Coal Trade. The colliers have not made much stir this week about the wages question, but they seem to have decided to take no further action until the notices expire, when they will see what course the masters will take. The trade of the local ports for the last month shows a large falling off as compared with the corresponding month last year.

largely attended meeting of the Monmouthshire and South Wales Collieries' Association, held at the Royal Hotel, Cardiff, on Thursday, under the presidency of Mr. Richard Fothergill, M.P. After a long discussion upon the present state of the coal and iron trades, it was resolved that a reduction of 10 per cent. be made in the wages at all the collieries in the association. The masters then adopted the following additional resolution:—"That in case the reduction be resisted by a strike the associated owners do not pledge themselves to resume operations upon the above terms, but will require such a further reduction as the state of the trade may warrant. In deciding upon this reduction the council of the association desire to state that they do so in a spirit of moderation; they feel bound to express a strong opinion that the diminution does not represent the amount which is required to equalize the rate of wages with the present prices of coal and iron, and that the present reduction of 10 per cent. in iron wages, if it is not followed by a further reduction of 10 per cent. in coal wages, will undoubtedly become necessary." The ironmasters afterwards held a meeting for the consideration of questions affecting the wage rate of the ironworkers, and it was resolved to adopt the terms agreed upon by the coalowners, and to inaugurate a reduction of 10 per cent.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

May 14.—The business doing at the ironworks and collieries has undergone little or no change of late. There is a moderately fair demand for bar and other iron, although the requirements of the Sheffield consumers are not so large as they have been. The mills have been doing very well, whilst the foundries are kept well going in pipes and other castings. Colliery owners still complain of slackness, more particularly with regard to the London trade, which is not likely to improve, seeing that a large proportion of what is sent is house coal. Although prices are at least 30 per cent. less than they were this time last year, and the consumption in the metropolis is considerably less now than it was at that period. The colliery districts in both North and South Derbyshire were in a very unsettled state, owing to the wages question being prominently brought forward by notices of reductions having been given at several places. Instead of taking into consideration the altered state of the trade the men appear to think of nothing but keeping up the existing working prices. But that they will have to submit to a reduction much larger than is now proposed by their employers admits of no doubt, for those who are acquainted with the trade and aware of the large number of collieries now being opened out in all parts of the

REPORT FROM CORNWALL.

May 14.—We are very far from being satisfied, of course, with the state of our tin standard, even after our two rises; and it is confidently anticipated that it will be put up again, if not this week, yet in a very few days. Everything points in that direction. The American demand increases, stocks in the country are not large, and it is now admitted on all hands that Australia, at anything like the prices that have ruled of late, or that are ruling now, even with a substantial margin, need not be feared. The prospect is really a most encouraging one, and many of the weak-kneed brethren are beginning again to pluck up a little courage. Quite an interesting paragraph might be written about the absurdities into which these gentry often fall in their wild panics, and the ridiculous bargains they make. B relinquishes because A does, and A relinquishes because somebody has said something; and so, most unintelligently, the game too often goes on, and folly sets a ball rolling which wisdom cannot stop. We have had many instances of this. Matching this absurdity is the figure at which shares in some of the abandoned mines have been sold, when a moment's reflection might have shown their owners that the value of the materials and machinery would return a dividend without risk, perhaps ten times as great as the sum for which they parted with their shares. To do such adventurers justice, however, it must be stated that they are often frightened into selling in haste that they may repent at leisure, by dread of that veritable Cornish ogre, the Stannary Court. There has been very little said of late about the reform of this venerable institution, perchance from the hope that ere long it may be removed off the face of the earth, and its business transferred to the County Court. But that may be a long while coming, and in the meantime there are reforms that might be made. For instance, the Court might hold its sittings in various towns, like the County Courts, and it might appoint liquidators outside its own official borders. If private persons can discharge the duties of trustees in bankruptcy, why not of Stannary liquidators?

North Crofty did hard. It was thought that at Tuesday's meeting the "bal" would have the *coup de grace*; but no, there is yet another chance. The present company has been so diminished by relinquishments and other causes that it cannot carry on the mine. Indeed, from a set of peculiar circumstances it is impossible even to get the required three-fourths in value to decide on its sale as a going concern. Tuesday's meeting would, therefore, have resulted in a resolution to pull up the pitwork and sell the machinery and materials, to the great detriment of the Setons and other neighbouring mines. At the last moment, however, Mr. Basset stepped in to prevent this calamity. His representative served notice that a resolution to sell as a going concern, being a breach of the covenants in the lease, would be, as a forfeiture, followed by entry on the part of the lord, and that he required 40 days notice, as provided for in the lease, to decide whether he should take the plant at a valuation. The step was taken by Mr. Basset, as was explained, not to injure North Crofty, but in the interest of the district, the object being to have the mine kept in fork until an attempt had been made to get it taken up by a new company, for which the 40 days named will, it is believed, suffice. The North Crofty adventurers will not suffer, at least materially, by this delay, for it would take them a month to clear up, and at the end of the 40 days, if no arrangement is made, it is understood that they will be at liberty to adopt what steps they please. So matters now rest. It is to be hoped, in the interest of the district that North Crofty may be kept on; if not the engine ought to be kept going at the rateable charge of the mines benefited. It appeared not improbable at one time that a curious question would arise out of the complication—the liability of mine lessees to perform the covenants in a lease which the adventurers fail, and cannot be made, to do. The general legal opinion is that in such a case the remedy is against the lessees.

The Bill for the rating of mines, which was rejected last year, will be re-introduced by the Government in a few days, and, in all likelihood, will pass.

A case of very considerable importance to investors in mining property has been tried in the Exchequer Court. It may be remembered that upon the formation of the Belowda Beacon Tin Mining Company (Limited), which was started for the purpose of working a mine in the parish of Roche, a prospectus was issued with a clause to the effect that the vendors guaranteed 10 per cent. on the subscribed capital for three years. Mr. George Howes, a Liverpool merchant, bought some shares; now the mine is wound up, and Mr. Howes, alleging that he purchased, in consequence of the guarantee of the vendors, brought an action against them to recover the price of the shares. The defendants pleaded that the guarantee was conditional on the mine being properly worked. They alleged that the mine had not been worked in a proper manner, and that, owing to this and insufficient support from the public, the hopes of the guarantors had not been realised. Ultimately a verdict for plaintiff for 105*l.* was given by consent. This decision will make guarantors careful to see that they themselves are guaranteed.

The broad-gauge interest have been unable to acquire the Great Western Docks at Plymouth, whereat so much of the Cornish china clay is shipped on the exclusive terms which they desired. The Parliamentary Committee have decided that the narrow gauge, which is really already the gauge of the county, shall not be shut out.

The Bill authorizing the construction of the St. Austell and Pentewan Railway has had its clauses passed by Lord Redesdale, all opposition having been withdrawn, and it shortly complete its remaining formal stage. The line, with which is connected the dock at Pentewan, will be a conversion of the tramway existing between the port and the china-clay districts north of St. Austell, and a short branch to the vicinity of the Cornwall Railway Company's station at that town. The gauge (2 ft. 6 in.) is 6 ft. wider than the Festing Railway, lately so well known from its being continually used as an illustration of the advantages of economical narrow-gauge lines by Fell and others. The St. Ives Railway is to be completed next year.

Messrs. John Feman, the well-known granite merchants of Penryn, Lamorna, and the Cheesewring, have been the victims of a rather large deception by a confidential clerk. The juniper-stone found deficient in his stamps led the amount of £5., and no satisfactory explanation could be given. The youth left the town and went to Bristol, Messrs. Freeman being absent from home. He is supposed to have followed to Bristol, where he made a confession which implicated another clerk, named Burrows, and Burrows also decamped afterwards with 280*l.*, which he had obtained to pay the men at the Cheesewring quarry. It was found that he

Last week we inadvertently mentioned Fair Oak as the site of the last Cannock Chase coal discovery. This was a mistake. The new sinking of the Cannock and Rugeley Colliery Company is the one to which our paragraph had reference. The sinking is at Hednesford, and has proved the existence of all the regular Cannock Chase seams under a considerable area hitherto unproved. The Bunter conglomerates were found to extend to a depth from the surface of 80 yards, and immediately underneath were the top coal measures. The flow of water in the conglomerates was very considerable, and it was found necessary to put down 73 yards of cast-iron tubing, a plan successfully adopted at most of the Cannock Chase mines. It is intended to work the shallow and deep coals first. These lie at respective depths of 430 and 450 yards, and are pronounced of excellent quality. The plant being put down at this new colliery is of very fine description. At each shaft will be a pair of 32-in. cylinder engines, with 16-ft. diameter drums, and the entire apparatus is on a scale of equal efficiency. The general manager of this important company is Mr. John Williamson.

The Duke of Sutherland has commenced on an extensive scale the southern part of the North Staffordshire coal field, and in connection with the enterprise he is about to construct, with the sanction of the Board of Trade, a private railway from the scene of the trial borings near Lightwood to Blurton, where the Duke has a large brick-making establishment, and thence to the bowling-green at Trentham.

The market for stocks and shares in local industrial concerns continues to be affected by the general depression in the trade. The following are among the latest quotations:—Ivy House and Northwood Colliery (7½ paid), par; Sandwell Park Colliery (A and B shares), 500, sellers; Cannock and Huntington Colliery, 14 buyers; Patent Shaft and Axle, 5 prem.; Birmingham Wagon (10 paid), 18½ sellers.

The North Staffordshire ironmasters are coming to the conclusion that the worst of the crisis is over, and that a steady amendment of the trade may now be reasonably looked for. The demand has improved somewhat since our last report, and the mills are doing from six to eight turns per week. Orders for rails are scarce, and the mills specially devoted to that class of iron are not doing much. The pig-iron branch is without alteration. Coal and ironstone are, on the whole, in steadier demand.

TRADE OF THE TYNE AND WEAR.

May 14.—The Coal Trade has been exceedingly good in Northumberland during the past week, partly owing to the great strike in Durham, 200 colliers having been on strike in the latter county during the whole of last week. Steam coal prices have, therefore, been well maintained. As the enginemmen in Durham went in on Thursday it was fully expected that the whole of the collieries would be at work on Monday, but new difficulty was started by the men, as they requested that all collieries should be worked only five days per week instead of eleven days per fortnight, as is done at many works, and especially at those producing coking coal. The masters, however, are very firm in adhering to the rules in force before the strike, and a notice was posted at all the mines on the same day, stating that the strike was started on Monday on the same conditions as before the strike, and with the reductions in prices agreed upon. In consequence of this notice many of the large works were not started on Monday, although Mr. Crawford, on the part of the executive of the Miners' Union at Durham, strongly advised the men in all cases to start work. Of course, the head quarters of the disaffected party is at Houghton, in the great Hetton district, where Mr. Pritchard is leader, and he appears to be at open war with Mr. Crawford and his colleagues. However, a large number of collieries was started on Monday, and since that time the number has been increased. About one-third of the colliers in Durham remain out, but if the Cleveland miners continue out, which is likely at present, the demand for coal and coke will be very moderate indeed, as 75 per cent. of the coal and coke produced in Durham is consumed in the Middlesbrough district. It is quite clear that the existence of South Durham as a great coal and iron producing district is in great peril. A large number of colliers are on strike, and the whole of the iron ore miners are also out, and it must be noticed that the action of the men in both cases is utterly against the course advised by their own agents. It is therefore, quite clear that if these men have succeeded in forming a Union and in establishing an organisation which is powerful for evil, and which they cannot control. They can, it is clear, lead the men so long as they are advancing, but when a retreat is even soundly uttered, disorder, and mutiny occur in the ranks of the motley army of 40,000 men they have attempted to reduce to discipline. In Durham the men have with an ill grace submitted to a reduction of 10 per cent., but at the same time they have attempted to make a reduction in the number of working days, which would have the same effect as their own agents would have suggested, and which would ultimately seriously injure both parties. The Cleveland men refuse to submit to a reasonable reduction in the face of a rapidly falling market.

NEW WINNING FOR COAL.—Good progress continues to be made with most of the new coal works in this district, although house building and other surface plant has been in many places considerably checked, owing to the adverse change in the coal trade. In Northumberland two shafts have been commenced at Churton Bank, 43 miles north of the Tyne. Two seams have been proved here by boring, both under 3 ft. in thickness, and the projectors confidently expect that a four-foot seam will be found at a lower level, although there has been some controversy on this point. This opinion is founded on the fact of the existence of the four-foot seam alluded to in adjoining royalties. Large beds of excellent limestone are also found here, and it is intended to work these beds extensively, there being a great demand for lime in this great agricultural district, as well as coal to work the steam-engines, which are now greatly used in the cultivation of the land. Many other openings are in course of sinking at Ashington, Stobswood, Acklington, Shire Moor, Whitley, &c. At all of these places the sinking is being prosecuted with vigour. At Redknap, on the west side of Gateshead, two large shafts are in progress, the largest working shaft being 16 ft. in diameter. It is intended to erect a large number of coke ovens here, in order to manufacture coke from the lower beds of coal expected to be found, and also to work the extensive beds of fire-clay which are found here, and manufacture fire bricks, &c. A dinner was given to the workmen on Saturday, on the occasion of proving the first seam of coal. At Norwood, where one shaft was opened last year, a good deal of coal is now worked, and two more shafts are being opened out. At Redknap two shafts have been sunk within the last two years, and coal is now being worked and expected to be obtained in quantities which will be increased. The second shaft at Silkswood has just been got down to the Hutton seam, and sinking operations, which have been going on here nine years, are now nearly brought to a close. At Ryhope, south-east of Silkswood, coal is now worked extensively under the German Ocean, and the explorations here will give some idea of the breadth of coal being worked from west to east in the Durham and North-

kingdom—especially in the Midland coal field, of which Derbyshire forms a part—know very well that even the present prices are not likely to be maintained.

The Sheffield Trades are much the same as when last noticed. Quietness prevails at most of those engaged in light work, and at some of them the men are not fully employed. The heavy armour-plate mills are doing well, as are those rolling ship and boiler plates. Forgings, too, are in tolerably fair request, and there is a little more doing in railway material. The malleable works at Kellam Island are doing well and turning out considerable quantities of those highly finished and exquisitely designed castings for which the firm of Croxley and Son enjoy such a high reputation. The Bessemer establishments are doing very well, there being considerable orders in hand for rails and forgings.

The Coal Trade has been quiet, and at several collieries in South Yorkshire the men are working short time, whilst at others there are considerable stocks of "harls" on the banks. The great event of the week has been the meeting of the miners' delegates and the colliery owners at Barnsley, which took place on Tuesday. There were upwards of 100 delegates present, and the proposal on Tuesday, reduction was all but unanimously condemned as unadvised for. The men, in fact, showed no disposition to allow of any reduction, and it may be fairly assumed that they expressed the opinion of the 23,000 men they represented. A resolution was passed to the effect that the time for a reduction of the miners' wages in South Yorkshire and North Derbyshire had not yet arrived. On the other hand, several of the masters considered that 12½ per cent. reduction was too little, and that in the event of the offer not being accepted it would be advisable to lay the pits down until the men changed their minds. Ultimately it was arranged that the decisive answer of the men should be given to the colliery owners on Tuesday next.

A large number of gentlemen, engaged and interested in the working of mines in South Yorkshire, assembled at Barnsley on Tuesday, to witness a series of experiments with Denayrouze's patent mining apparatus, for enabling miners to descend into collieries after explosions have taken place, and into rooms or places filled with explosive or poisonous gases. Amongst those present were the Mayor of Barnsley, and a majority of the Town Councillors and Aldermen; Mr. Hantriss, manager, and Mr. W. Wilson, underground viewer, Darfield Main Colliery; Mr. A. Chambers, of the firm of Messrs. Newton, Chambers, & Co., the Thorncliffe and Chapeltown Collieries and Ironworks; Mr. Hartley, manager, the Silkestone and Dodworth Iron and Coal Company (Limited); Mr. W. H. Peacock, Secretary of Midland Institute of Mining Engineers; Mr. Maddison, manager of Woolley Colliery; Mr. Defty; Mr. Hutchinson (Hutchinson Brothers, engineers); Messrs. Normansell and Casey, secretaries of South Yorkshire Miners' Association, &c. Mr. E. Applegarth, of London, the agent to the patentees, gave a brief description of the apparatus. The first experiment was with a patent lamp, by Mr. M. Denayrouze, which was tested in order to show that it would burn freely and without danger, amidst explosive gas. Another lamp was shown and exhibited in a large cask filled with water, in order to show that it would burn freely therein. Messrs. Halborn and Salmon, two of Mr. Applegarth's assistants, next were attired with the apparatus used for entering collieries, &c., filled with gas. Both made their way into a large warehouse impregnated with noxious gases, and remained therein for some time. In the meantime air was being pumped by four men outside. Afterwards, the captain of the Barnsley Corporation Fire Brigade entered the room with the apparatus. The experiments created a good deal of interest.

NEW AND ECONOMIC PUMP.

The extreme simplicity and great water-raising capacity of the very primitive form of pump met with in some of the old Spanish mines, and consisting merely of a wooden tube, of length corresponding to the depth of the shaft, with an endless rope carrying at intervals a bunch of sheepskin, has been admired and favourably reported upon, so far as the principle is concerned, by some of the most competent engineers who have been entrusted with the management of mines in modern times, but all have concurred that obvious want of durability and general roughness of the contrivance rendered the introduction of various improvements absolutely necessary to enable a pump upon this principle successfully to compete with the other forms of pump at present in use. It was seen at once, for example, that the square wooden box through which the water was raised would have to be replaced by a metallic tube, and that even in the improved kind of cylinder thus suggested the bunch of sheepskin was certainly not the most economic form of piston that could be adopted. The question then which presented itself for the solution of inventors was how to utilise this principle of lifting the water only without any dead weight (for it was admitted that in a properly-constructed pump of this class the descending pistons might be made exactly to counterbalance those ascending through the tube), and at the same time reduce to the minimum the friction between the tube and pistons, as well as that about the wheel by which the pistons were put in motion.

To the solution of this question inventors have energetically applied themselves during the past century, the first real progress being that made in the chain-pump, invented in 1790 by Mr. Depronny, who used an iron tube with a chain running through it, affixing upon this chain at short intervals from each other a series of discs, to which leather washers were somewhat roughly fastened to serve the purpose of packing. The hardening of the leather after being in the water, and the impossibility at the date of the invention of obtaining a tube with anything like a smooth interior surface, gave rise to several annoying difficulties in the practical working of the pump—that of steering between too much friction on the one hand, and sufficiently tight packing to prevent the descent of the water when the pump was stopped being the principal—led to the abandonment of the invention; but not before Depronny had done enough to prove that it was in mechanical details only that the chain-pump was defective. In the ordinary working of the pump a large quantity of water was raised with comparatively little power, but the misfortune was that perhaps at the most inconvenient moment the chain would break, and the whole series of discs would fall to the bottom of the pit, necessitating considerable delay in getting the pump at work again. This, coupled with the annoyance of the pump being temporarily unserviceable if it was left idle for a time, created a prejudice against the system which subsequent inventors have found it difficult to remove.

Notwithstanding this, various efforts have been made to perfect the pump, and it must be admitted that many inventors have made very important corrections of the mechanical defects, not the least of these being those embodied in the invention of Mr. Jules Bastier, which in the hands of an energetic Englishman or American would, no doubt, have realised a fortune, for although the difficulty of the breakage of the chain remained unsurmounted, and the discs were capable of further improvement, there was no question that Bastier had the germ of a good invention, which only required careful development. He recognised the fact that England and America were the most fertile fields for introducing an invention for the more economic raising of water, but with the most contracted notions of a Frenchman, and with such inability to learn our language that after ten years residence in England he could not carry on an ordinary conversation, he sought to develop the invention single handed, to superintend the manufacture himself, and demanded heavy royalties for the use of the invention; his constant challenge being, until he had reduced himself from affluence to poverty, that he would put down a pump at his own expense, but that if it worked as he promised he would have his own price for it. From manufacturers who would have undertaken the working of the patents, and had influence to promote the adoption of the pump, he demanded 25 per cent. upon the selling price; the natural consequence being that the invention was neglected until the patents had expired, and the trifling modifications necessary to make the pump a practical success were never brought forward.

But the unsuccessful efforts of Depronny and Bastier have not failed to produce good fruits, and it is now confidently believed that the last of the mechanical defects which have hitherto prevented the general adoption of this principle of pumping have been removed. Mr. FRANÇOIS MARTIN, of Rue Laugier aux Ternes, Paris, an ingenious mechanic, who has had considerable experience in the actual manufacture of pumps of this class, and has, therefore, had the best possible opportunities of observing the defects, and judging of the readiest means of removing them, has constructed working models of pumps upon the principle of the chain pump, but in which the inconveniences referred to—the breakage of chain and defects of the pistons—are entirely overcome, and he is now seeking the assistance of an English or American capitalist to join him in securing the necessary patents. The action of the model is as near as may be perfect. The system which he uses for the packing of the pistons is admirable, since there is scarcely more friction than in the best form of steam-engine cylinder, although they are sufficiently tight to hold up the column of water for many hours. With material of ordinary quality it is most unlikely that any breakage would occur between the pistons more frequently than the breaking of the piston-rod of a steam-engine, whilst in the possible contingency of such a breakage the pistons would not, as in the chain-pump, fall to the bottom of

the pit, but the evil could be remedied in five minutes. These facts, coupled with the circumstance that the pump can be cheaply constructed, should suffice to ensure its general introduction.

THE COAL CRISIS IN FRANCE.

Our readers are doubtless aware that a French Parliamentary Commission has recently enquired very exhaustively into the subject of the coal industry of that country, and has been the means of bringing to light many facts of the greatest importance concerning the matter under investigation. Subsequent to the sittings of the Commission many reports have appeared from the different mining districts containing suggestions as to the remedy of what has been called the coal crisis, and speculating as to the causes which have contributed to the recent agitation in the trade. One of the most valuable of these reports emanates from the extensive mining district of the Loire, and as it deals with the subject very thoroughly, and gives facts which will be of interest to the readers of the Journal, it may be useful if we give the subject of such information as is worth reproduction. The first point alluded to is that the price of coal since the late war has greatly increased in France, and that there has been an inadequate supply. How have these results been brought about, and in what measure have they been brought about by the coal miner, the merchant, or the speculator? It has been pointed out that the advance of price has been merely sufficiently remunerative in the circumstances, while it has had this result—it has given a great impetus to production in the mining districts, and in that sense must be considered satisfactory. Again, it is important to note this fact, that the production of coal in France has been always inferior to the consumption, and, consequently, the necessity has been imposed of compensating for the deficiency by the importation of coal from other countries. With regard, therefore, to the causes which have contributed to the agitation in the French coal trade, it is argued, and with great reason, that this agitation has not been caused by any diminution in the production, and that it cannot properly be attributed to the coal miners, as statistics show that the produce of the mines has increased of late years. It is claimed, indeed, and the facts support the claim, that the French coal miners have not been in any way unenterprising in this matter, but, on the contrary, have done all they could to mitigate and avert the evil. Although they have been surrounded by numerous embarrassments during the past year or so, they speedily repaired the ravages of the late war, and exceeded the amount of coal produced before the occurrence of that calamity. The deficiency of supply, consequently, cannot be attributed justly to them, but rather to the unexpected falling off in the foreign imports.

In regard, moreover, to the general discussion upon the coal crisis in France, two points are brought prominently into notice, and they are these:—1. That the coal crisis was, broadly considered, the result of the special requirements of consumption caused by circumstances by no means peculiar to France alone, but felt in other European countries, and aggravated by exaggerated fears as to the deficiency of supply.—2. That the dangers of the French coal trade are thus shown to be great from the difference between the amount produced from the native mines of the country and the consumption. Consequently, in order to avert these dangers, the importance of extending the mining industry, of opening up new mines, and thus increasing production, is clearly demonstrated. It is seriously urged upon the Government that they should assist in this work, though not by measures of coercion, as has been the case, but by removing from the mines all unnecessary obstacles of legislation, with which they have previously been trammelled. It is stated that the particular advantages which this branch of the mining industry in France needs to assist in its development are certain reforms in the mining law passed in 1810—a better supply of miners, and improved transport facilities. In some respects, it is contended that the mining legislation complained of tends to discourage rather than encourage mining enterprise, and that it legalises restrictions which are wholly unnecessary. Serious attention is also directed to the want of labour for the mines, the development of which is greatly impeded on this account. It is stated that the mining district of the Loire suffers materially from this cause, as, indeed, do all the collieries more or less. The workmen, as a rule, prefer other vocations, where there are not the same dangers and special conditions of working as experienced in coal mining. Parents do not bring up their children so constantly to the mining industry as they formerly used to do, and as the miner's work requires special aptitude, another annoyance is experienced from the want of such knowledge. It is necessary, as this report points out, that the miner should not only possess physical strength but the art to carry out his work properly, the prudence which enables him to avoid danger, and the courage to brave it.

The French mines, however, not only suffer from the insufficiency of workmen, but from the inexperience of those who are employed. The amount of actual work done by the miner appears also to gradually decrease. In proportion as his wages are raised he shows a more or less marked tendency for mischievous pleasures, which deprave and enervate him. But it appears that merely raising the wages, even when combined with other advantages, is not sufficient to make the mining industry popular with the French workmen, and the question thus becomes a rather puzzling one for the owners of mines. To their credit, moreover, must it be said that they do all they can to attract labour in their direction by attention in every way to the well-being and comfort of those they employ. One suggestion in the way of adding to the popularity of this trade is that the miners should be partially exempt from the system of military recruiting, but in the present state of affairs in France it is impossible to say how far such a suggestion is likely to meet with favour and support.

THE "KAINOTOMON" ROCK-DRILL.

This machine, which was introduced about a year ago by Mr. Thomas A. Warrington, not only maintains what was claimed for it on its introduction—its superiority as a rock-drill—but it has proved itself to possess the all-important quality of durability, or non-liability to derangement and breakage. The constant liability to breakages in the earlier rock-drills has undoubtedly been the greatest drawback to their general adoption for mining and quarrying purposes. There can be little doubt that by the aid of an efficient and durable rock-drill enormous savings in money and time might be effected as compared with hand labour; that this is so is proved by the numerous inventions of rock-drills which have been patented within the last few years, and the numbers of mining men who have derived advantage from using even inferior machines. The difficulties, however, which have existed of obtaining all that is required of a rock-borer appear to have been considerable, if we may judge by the few machines that have shown themselves worthy of notice. We may mention one of the difficulties that have been overcome by the Kainotomon. In other hand-feeding rock-drills when the attendant overwinds the machine by even half an inch it stops, has to be wound back, and the piston-rod pushed out before it will start again. The Kainotomon, however, is so constructed that it may be wound 2 in. out of stroke without causing it to stop, the only alteration being a shorter stroke; this is undoubtedly a great advantage, as it is next to impossible to regulate the feed always to such a nicety as not to frequently stop the machine, where half an inch over-winding will do it, the stoppages naturally causing trouble and delay, and deteriorating the usefulness of the drill.

We are credibly informed that out of the great number of Kainotomon drills which have been distributed in almost every European country there have only been two trivial breakages that have come to the knowledge of the manufacturers during the twelve months the machines have been in constant use. This must be very gratifying to the owners, and is not uninteresting to ourselves, who have advocated the importance of simplicity and durability in rock-drills, in order that they may be advantageously used for developing mines and other enterprises where rock has to be blasted, especially in such cases where the mines could not otherwise be profitably worked.

Besides the Royal Mines of Prussia, where two of these rock-

drills were in constant use for six months without repair, and the pressors, Mr. Warrington's drills have been largely adopted at the following important mines and collieries:—The Blancy Collieries, in France; the Eitorf Mines and Zaukeroda Mines, in Germany; the Montreal Hematite Iron Mines, Cumberland; the Barrow Hematite company's collieries. In addition to these a large number of companies and firms have purchased Kainotomon drills, among whom may be mentioned:—The Misterhult and Solstad Mining Company, Sweden; the Tharsis Copper Mining Company, Spain; the Mina de Lapilla, Company, Spain; the Klosters Aktiebolag; the Dalmeilington Iron Colliery Company; the Pant-y-Mwyn Lead Mining Company; the Summerlee Iron Company; Messrs. Whitley Partners, Leeds; the Eglinton Iron Company; Mr. P. McGinnis, Strabane; the Manchester, Sheffield, and Lincolnshire Railway; Messrs. Lancaster and Co., Prescott Colliery; Messrs. Charles Dixon and Son, Sheffield; the Niquis Coal and Cannel Company; W. Torrance, Esq., Mid-Caldar Lime Works; the Glamorgan Coal Company; Messrs. Hydes and Wigfull, Sheffield, &c. This extensive adoption of the Kainotomon drill by important companies shows that those most interested in mining are becoming fully alive to the importance of rock-boring machinery.

ROCK-DRILLING—THE WARING DRILL.

It has been remarked that the perfect drill is the simplest machine that will perform the required work with certainty and economy; but the motions necessary to accomplish this work are numerous and delicate, and the task of devising the best mechanism for the purpose is so difficult that many years have already been spent in it. It is generally considered in America that to obtain the proper force the full steam pressure must be used through the whole stroke, and, as the reciprocal motion of the piston is entirely untrained by a crank connection, it is necessary to provide a very perfect and instantaneous valve-action that will prevent the piston from striking the heads of the cylinder. In a rock-drill, therefore, three distinct motions must be provided for—the valve action, the feed, and the rotation of the drill. All of these must be so arranged as to answer certain positions connected with each one—the parts must be durable, and the arrangements must not be complicated. The Waring drill is claimed to fulfil all these requirements in a very beautiful manner. It consists of a cylinder, which is made several times as long as the stroke, for the purpose of providing within it space for the several parts. The cylinder, therefore, acts both as a steam cylinder and as a housing for the mechanism, of which only two parts project—one being the piston-rod, and the other the feed-screw. The valve is placed in the centre, and works diagonally across the cylinder, instead of in the direction of its length. The valve has a boss which reaches down through the wall of the cylinder, and fits in an inclined slot cut in a piece of brass which is let into the piston. This slot has curved ends, so that when the end of the stroke is reached the valve is thrown sideways, and the course of the steam is reversed. The action is positive, the mechanism free from springs, and, as the movement of the valve depends upon the position of the piston, reversal must take place when the piston arrives at the proper spot. Nothing more accurate and certain could be conceived, but experience has shown that a good valve action is not the only requirement for the control of the piston. The machine can start at any distance from the rock, and work its own way down without injury and without striking the head; in fact, it has been run fifteen minutes with a man turning the feed back as fast as the machine carried it forward, so that the rock was not reached at all. Next in importance is the feed, which is entirely automatic. The steam cylinder is placed in guides, and held in position by a screw working through a yoke fastened to the guides. On this screw is a face ratchet, the teeth of which engage the teeth of a similar ratchet which is placed on a tube that runs into the piston. This tube has slots with curved ends, and in these slots work pins driven through the piston. So long as the drill strikes a good blow these pins run up and down the straight part of the slots; but when the hole has been cut away enough to let the pins down to the curved part of the slots the tube receives a partial revolution. The ratchet on the tube acts on the corresponding face ratchet, and turns it a little way down the screw, by which the cylinder, with all its attachments, advances on the guides, and the drill is brought up to the rock. This feed motion requires no adjustment. It is always right, acts fast in soft rock, and slow in hard rock. The turning of the drill is accomplished by a mechanism quite similar to the feed, but placed at the other end of the cylinder. It is hardly necessary to describe it, as this, though a necessary part of the drill, is one of the least difficult to provide. At each back stroke of the piston the drill makes a 1-15th revolution.

GENERATING OF STEAM.

A very important invention, especially applicable for underground use in connection with coal-cutting machinery, and pumping water or air in mines, is a new mode of generating steam and expanding gases combined for obtaining motive power, also devaporising steam, is that recently brought out and patented by Messrs. HURD and SIMPSON. The space required for the apparatus is very small when compared with existing regenerators, whilst the combustible power is so thorough and intense as to use every particle of fuel charged, excepting the smallest quantity possible, which is used to ignite the re-charge of fuel when required. The steam is raised with great rapidity from cold water up to a high pressure; whilst, owing to the uniformity of the water level, there is no possibility of an explosion taking place. The other special advantages claimed for the new steam and power generator are the entire absence externally of smoke or vapour, and the devaporising of the exhaust or escape steam by causing it to pass through a heated apparatus. The generator itself consists of a fire receptacle placed in the interior of the water space of a steam-boiler of any form, and is provided with a self-acting breech-loading contrivance at the feed entrance in such a manner that it may be re-charged without the possibility of any escape of gas from it. The receptacle is also provided with similar contrivances for the discharge of any portion of fuel that may not be consumed, whilst it is so constructed that the exhaust steam from engines worked by the generator is conveyed to the interior or around the receptacle, so as not to come into direct contact with the fire contained in it, but into a chamber composed of fire-clay and black-lead, or any other material most suitable to withstand intense heat, and where on its entrance it is instantly devaporised and exhausted without back-pressure. The receptacle is also provided with a suitable self-acting valve arrangement to let off the intensely expanded and heated gases when they arrive at any such pressure above that of the steam and water compartment as may be desired, so that they will let off the gases through self-acting back-pressure valves along with the steam that may be required for motive power or other use, without the power of the steam or water finding its way into the fire receptacle.

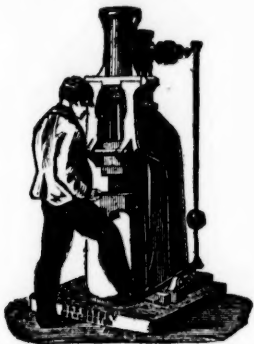
The fire and steam compartments are constructed in such a manner that in the event of any carelessness in letting the steam exceed the working pressure it is conveyed to the converting chamber referred to, where it is devaporised. The fire compartment is constructed in such a manner as to be self-acting, or regulated at will, so that the inlet of compressed air, or any other equivalent containing a good density of oxygen, should not return against its own pressure. The self-acting air inlet is made so as to create the most intense heat in the fire compartment without injury to the inlet contrivance (it being placed in the feed water tank), where the junction of compressed air, or other oxygen gases, meet the dense hydrogen generated in the fire receptacle. The air inlet contrivance is made self-acting by a governor, in such a way as to be reversible in case the water in the steam compartment should fail to keep up its proper level, and thus force the water into the steam compartment, at the same moment putting a stop to combustion in the fire compartment, and so preventing the possibility of an explosion. The fuel-feeding is constructed with a dial arrangement in such a manner as to be self-acting (say) every three, five, nine, or twelve hours, or as ex-

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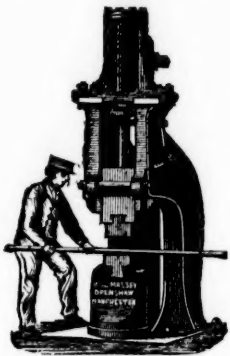
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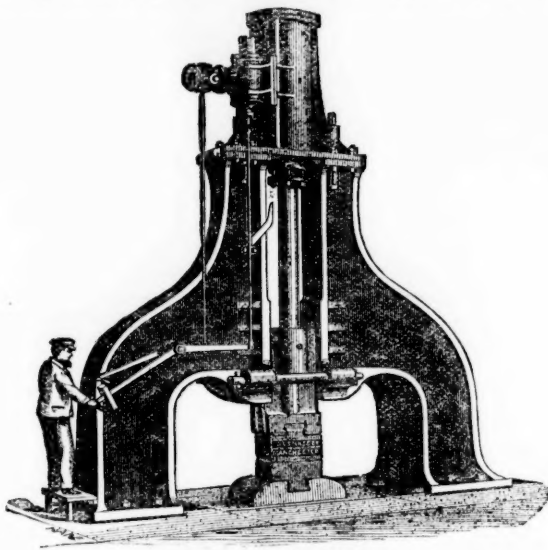
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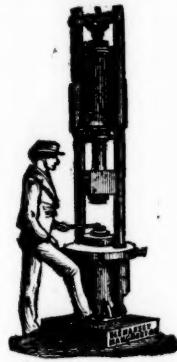
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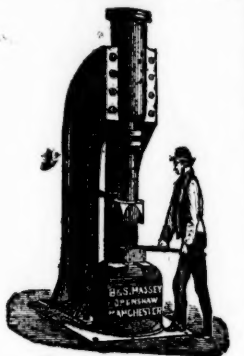
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3 ditto ditto ditto	6 "
1 ditto ditto ditto	6½ "
3 ditto ditto ditto	6½ "
2 ditto ditto ditto	7½ "
1 ditto ditto ditto	8½ "

PORTABLE ENGINES.	
1 Portable Engine	5½ in. cylinder.
1 ditto	6 "
1 ditto	6½ "
3 ditto	7½ "
10 ditto	8½ "

CRANES AND WINDING ENGINES.	
2 Steam Cranes for	30 cwt.
1 ditto	2 to 3 tons (Chaplin).
1 ditto	3 to 4 tons (ditto).
1 Hand Travelling Crane	3 tons.
1 ditto ditto	4 tons.

PUMPS.	
3 Chain Pumps	8 x 4
4 ditto	10 x 5
4 ditto	12 x 6
1 ditto	14 x 7
1 ditto	16 x 8
1 ditto	24 x 8
2 ditto	30 x 10
3 Woodford's Pumps, double	4 inch.
2 ditto ditto	6 "

MORTAR MILLS.	
2 Mortar Mills, with 4 ft. pans.	5 Mortar Mills, with 7 ft. pans.
4 ditto	5 ditto
1 ditto	6 ditto

SAW BENCHES, &c.	
1 Bench, 4 ft. x 2 ft., with 24 in. saw.	
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1 Bench, self-acting, 5 ft. x 2 ft. 9 in., with 32 in. saw, by Powis.	
1 Wood planing Machine, by Robinson, 12 ft. x 15 in.	
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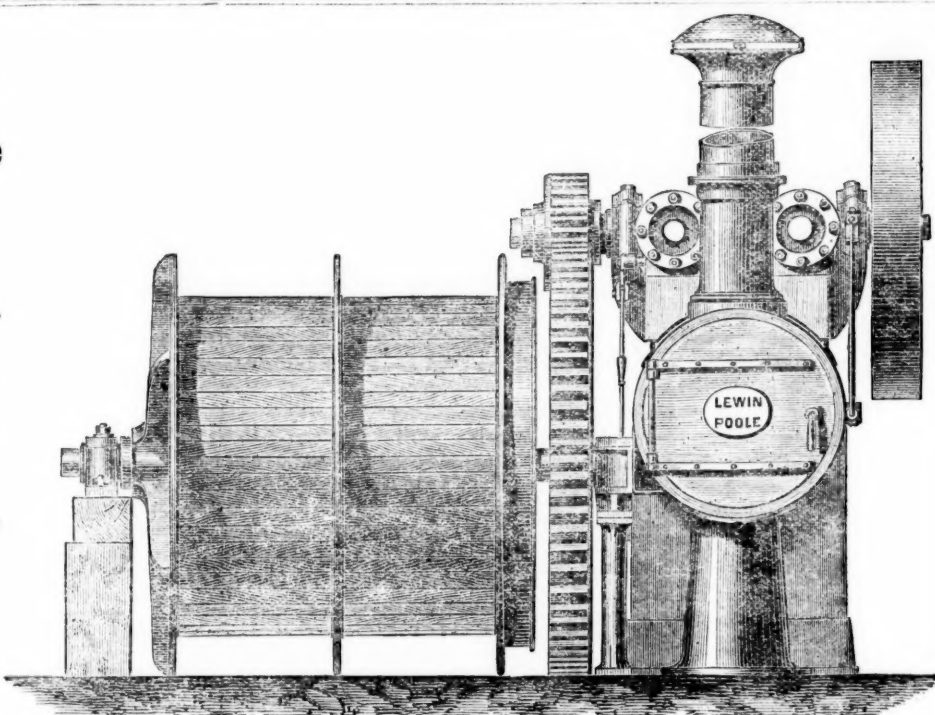
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BRITISH DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Clos. Pr.	Total divs.	Per share.	Last paid.
1500	Alderley Edge, c. Cheshire*	10 0 0	—	—	11 16 8	0 5 0	Oct. 1873
20000	All-y-Crib, i. Talybont*	2 0 0	—	—	0 0 6	0 0 6	Feb. 1873
30000	Bampfylde, c. i. m., Devon*	1 0 0	5 1/2	5 1/2	0 2 0	0 2 0	June 1873
5500	Blanc Caelan, s. l. Cardigan* (44 sh.)	3 10 0	—	—	0 10 9	—	—
18000	Boscawell Downs, i. c. St. Just*	3 0 0	—	—	0 5 6	0 5 6	Oct. 1871
200	Botallack, i. c. St. Just*	116 5 0	12 1/2	40 45	619 15 0	5 0 0	Aug. 1872
200	Bronfeyd, s. l. (43000 Deb. B. 8 p. c.)	100 0 0	—	—	110 0 0	2 3 0	Jan. 1872
4000	Brookwood, c. Buckfastleigh	1 16 0	—	—	2 14 6	0 6 0	Nov. 1872
3248	Cargill, s. l. Newlyn	4 17 11	—	—	4 16 3	0 6 0	Nov. 1872
6400	Cashwell, i. Cumberland*	2 10 0	1 1/2	1 1/2	1 4 0	0 4 0	Aug. 1872
7500	Carn-an-Dinas, i. St. Columb*	2 0 0	—	—	0 10 0	0 10 0	July 1873
1000	Carn Brea, c. i. Illogan	35 0 0	60	50 55	308 0 0	2 0 0	Feb. 1874
6000	C. th. & Jane, i. Penrhynendraith	5 0 0	—	—	0 7 6	0 7 6	June 1873
2450	Cock's Kitchen, i. Illogan	20 4 9	11	9 10	11 17 0	7 6 0	Jan. 1873
10240	Devon Gt. Consols, c. Tavistock*	0 12 0	1 1/2	1 1/2	116 10 0	0 12 0	May 1872
4295	Dolcoath, c. i. Camborne	10 14 10	47 1/2	45 47 1/2	104 4 2	0 12 0	Jan. 1874
10000	East Balleaswell, i. Saneered*	1 0 0	—	—	0 2 11 0	0 5 0	Feb. 1872
6144	East Caradon, c. St. Cleer	2 14 6	1	3 1	14 19 0	0 2 0	Oct. 1872
300	East Darnley, c. i. Illogan	32 0 0	—	—	221 10 0	1 0 0	Apr. 1874
6400	East Pool, i. c. Illogan	0 0 0	10	10 11	15 11 3	0 2 6	May 1873
6000	Exmouth, s. l. Christow	0 7 6	—	—	0 1 0	0 1 0	May 1873
2500	Foxdale, i. Isle of Man*	25 0 0	—	—	80 15 0	0 10 0	Sept. 1872
40000	Glasgow Carn, c. [20,000 £1 p. 10,000 15s. p.]	—	1 1/2	1 1/2	0 4 10	0 10 0	Sept. 1873
15000	Great Laxey, i. Isle of Man*	4 0 0	12 1/2	11 1/2	16 17 0	0 6 0	Apr. 1874
25000	Great West Van, i. Cardigan*	2 0 0	—	—	0 1 0	0 1 0	Sept. 1873
5000	Great Wheel Vor, i. c. Helston	40 15 0	—	—	15 19 6	0 2 6	June 1872
6400	Green Hurth, i. Durham*	0 6 0	5 1/2	5 1/2	1 8 0	0 4 0	May 1874
1024	Herodfoot, i. near Liskeard	8 10 0	4 1/2	4 1/2	62 5 0	0 15 0	Oct. 1872
12000	Hingston Downs, c. Calstock* (41 sh.)	—	—	—	4 3 0	0 5 0	Dec. 1872
35000	Kilbuck, s. l. Penryn	1 0 0	—	—	562 10 0	1 0 0	Mar. 1874
400	Lisburne, i. Cardigan	18 10 0	—	—	0 17 6	0 1 6	Jan. 1874
6120	Lovell, i. Wendron	0 0 0	—	—	63 9 8	0 4 0	Feb. 1874
20000	Minera Mining Co. i. Wrexham	5 0 0	—	—	0 8 0	0 3 6	July 1872
12000	North Hendre, i. Wales	2 10 0	—	—	0 12 6	0 2 6	Jan. 1874
2000	North Levant, i. c. St. Just	11 9 6	3 1/2	3 3 1/2	4 13 0	0 12 0	Sept. 1873
7000	Old Treburget, s. l. ordinary shares	1 0 0	—	—	0 0 0	0 0 0	Feb. 1874
4000	Old Treburget, s. l. (10 per cent. pref.)	0 10 0	—	—	0 0 10 1/2	0 10 1/2	Feb. 1874
6000	Ped-an-dra, i. Redruth	8 2 0	—	—	0 5 0	0 5 0	Nov. 1871
6000	Penhalls, i. St. Agnes	3 0 0	—	—	3 5 0	0 2 0	Jan. 1874
6000	Penrith, i. c. i. Gwynn	4 10 0	—	—	0 9 0	0 9 0	Nov. 1873
1772	Phosphor, i. St. Agnes	15 0 0	—	—	39 10 0	0 4 0	Nov. 1872
18000	Prince Patrick, s. l. Holywell	1 0 0	—	—	1 12 6	0 5 0	Mar. 1872
1120	Providence, i. Lelant (last call Mar. 74)	14 16 7	2	1 1/2	104 12 6	0 10 0	Sept. 1872
2000	Ronan Graves, i. Salop*	7 10 0	17	16 10 1/2	3 13 6	0 8 6	Apr. 1874
6000	Shelton, c. i. St. Austell	1 0 0	—	—	0 1 0	0 1 0	Feb. 1872
6000	Slimeford Dressing, c. Calstock*	1 0 0	—	—	0 1 1 0	0 1 1 0	Sept. 1872
512	South Caradon, c. i. Illogan	1 5 0	60	50 70	713 0 0	1 0 0	Apr. 1874
6000	South Carn Brea, c. i. Illogan	1 17 6	3 1/2	2 1/2	0 10 0	0 2 6	July 1872
6000	South Darnley, i. Cardigan*	3 8 6	—	—	1 1 6	0 1 6	Nov. 1873
6771	St. Just Amalgamated, i. c.	3 10 0	—	—	0 9 0	0 9 0	Nov. 1871
12000	Tankerville, i. Salop*	6 0 0	9 1/2	9 1/2	3 8 0	0 6 0	Feb. 1873
20000	Terras, i. St. Austell*	1 0 0	—	—	0 3 0	0 3 0	Oct. 1872
6000	Tincroft, c. i. Pool, Illogan	9 0 0	33	29 31	47 3 6	0 5 0	May 1874
4000	Trumpet Consols, i. Helston	6 5 0	1 1/2	1 1/2	9 11 0	0 10 0	Nov. 1872
15000	Van, i. Llanidloes*	4 5 0	30	25 27 1/2	12 9 6	0 12 6	Apr. 1874
3000	W. Cliverton, i. Penrynabuloe	10 0 0	3 1/2	3 1/2	52 10 0	0 5 0	June 1873
2048	West Hall Frances, i. Illogan	27 3 9	15	12 14	2 12 6	0 5 0	Oct. 1872
612	Wheel Basset, c. i. Illogan	5 2 6	8 1/2	25 30	638 10 0	1 10 0	Aug. 1872
4295	Wheel Killy, i. St. Agnes	5 4 6	8 1/2	8 1/2	11 11 6	0 4 0	Jan. 1874
896	Wheel Margaret, i. c. Lelant	15 17 6	1 1/2	1 1/2	82 2 0	0 10 0	Jan. 1872
10000	Wheel Mary, i. St. Dennis*	—	—	—	0 1 6	0 1 6	Jan. 1873
80	Wheel Owles, i. St. Just	70 0 0	—	—	522 10 0	0 4 0	Aug. 1872
12000	Wheel Russell, c. Tavistock	1 0 0	—	—	0 2 0	0 2 0	Jan. 1874
15000	Wheel Tregoss, i. c. Roche	1 0 0	—	—	0 1 0	0 1 0	Jan. 1873
10000	Wheel Whisper, i. c. Warleggan*	1 0 0	—	—	0 1 6	0 6 0	May 1873
25000	Wicklow, c. s. l. i. Wicklow	2 10 0	3 1/2	3 1/2	52 9 0	0 2 6	Mar. 1872

FOREIGN DIVIDEND MINES.

Shares.	Mines.	Paid.	Last Pr.	Clos. Pr.	Total divs.	Per share.	Last paid.
35500	Alamillos, i. Spain*	2 0 0	2	1 1/2	1 3 0	0 2 0	Mar. 1874
30000	Almaden and Tinto Consol, s. l.	1 0 0	1	3 1/2	0 4 3	0 1 0	May 1873
20000	Australian, c. South Australia	7 8 6	1 1/2	1 1/2	0 11 6	0 2 0	May 1873
10000	Battle Mountain, s. l. (6240 part pd.)	5 0 0	—	—	0 10 0	0 10 0	Nov. 1872
15000	Birdseye Creek, c. California*	4 0 0	3 1/2	3 1/2	0 17 4	0 8 0	July 1873
6000	Bensberg, i. Germany	10 0 0	—	—	0 17 4	0 8 0	July 1873
12320	Burra Burra, c. i. So. Australia	5 0 0	—	—	56 0 0	0 10 0	Oct. 1872
20000	Cape Copper Mining, i. So. Africa*	7 0 0	30	28 30	15 15 0	1 0 0	Mar. 1874
140000	Cedar Creek, c. California*	6 0 0	2 1/2	1 1/2	0 5 0	0 2 6	June 1873
30000	Central American Association*	0 15 0	—	—	0 6 0	0 1 0	July 1869
15000	Chicago, s. l. Utah*	10 0 0	—	—	0 16 0	0 4 0	Sept. 1873
21000	Colorado Terrible, s. l. Colorado*	5 0 0	4	2 1/2	0 8 0	0 2 0	Oct. 1871
76162	Don Pedro North of the Rey*	0 16 0	—	—	2 8 0	0 2 0	Mar. 1872
93500	Eberhardt and Aurora, s. Nevada*	10 0 0	4	3 1/2	1 0 0	1 0 0	July 1871
2352	Eldorado, c. Nova Scotia	50 0 0	—	—	2 5 0	0 15 0	June 1873
60000	Empire, s. l. Utah (25,000 fully pd.)	20 0 0	2 1/2	2 1/2	3 12 0	0 15 0	Dec. 1872
70000	English and Australian, c. B. Aust.	2 10 0	—	—	2 7 2	0 2 6	Mar. 1873
15000	Ferguson, c. California*	2 0 0	—	—	0 3 0	0 3 0	April 1872
30000	Flagstaff, s. l. Utah*	10 0 0	3 1/2	3 1/2	4 2 0	0 5 0	July 1873
25000	Fortuna, i. Spain*	3 0 0	5 1/2	4 1/2	4 4 0	0 5 0	Mar. 1874
30000	Gold Run, h. l.	1 0 0	—	—	0 2 4	0 4 0	Oct. 1872
60000	Kapunda Mining Co. Australia	1 3 0	—	—	0 14 0	0 2 0	July 1873
20000	Last Chance, s. l. Utah	5 0 0	1 1/2	2 1/2	14 10 0	7 6 0	Mar. 1874
15000	Linares, i. Spain*	3 0 0	4	3 1/2	11 6 0	0 15 0	Mar. 1873
7837	Llanfyllter, Portugal* (48 shares)	3 0 0	—	—	0 11 6	0 2 6	Mar. 1874
15000	Mammoth Copperworks of Utah, c. s.	10 0 0	—	—	0 4 0	0 4 0	Jan. 1873
6000	Mountain Chief, s. l. Utah*	10 0 0	—	—	0 6 0	0 3 0	July 1873
18000	Prussian Mining & Ironworks, c. l.	30 0 0	—	—	14 16 11	1 3 0	Dec. 1872
10000	Pontigault, s. l. France	20 0 0	22	20 22	1 8 0	1 0 0	Jan. 1872
100000	Port Phillip, c. l. Clunes*	1 0 0	—	—	1 12 8	0 5 0	Mar. 1874
44000	Richmond Consols, s. Nevada*	5 0 0	7	7 1/2	12 per cent.	—	Nov. 1873
120000	Scottish Australian Mining Co.*	1 0 0	1 1/2	1 1/2	1 8 0	0 2 0	Dec. 1873
112500	Sierra Buttes, c. California*	2 0 0	2	1 1/2	0 14 2	0 2 0	Nov. 1873
60000	South Aurora, s. Nevada*	5 0 0	—	—	2 12 0	0 4 0	Mar. 1874
15000	Sweetland Creek, c. California*	4 0 0	4 1/2	4 1/2	0 15 0	0 6 0	May 1874
20000	Tolima, c. s. l. (600 sh. are £5 f. pd.)	4 0 0	—	—	54 0 0	0 20 0	Dec. 1873
600	Westphalian, s. l. c. Prussia*	20 0 0	—	—	0 3 7	0 1 0	Jan. 1874
18000	Western Andes, s. l. (4000 £5 f. pd.)	3 10 0	2 1/2	2 1/2	—	—	—

NON-DIVIDEND FOREIGN MINES.

Shares.	Mines.	Paid.	Last Pr.	Clos. Pr.	Last Call.
20000	Anglo-Australian, <i>c.</i> Victoria*	2 10 0	...	...	Sept. 1872
20000	Australian United, <i>c.</i> Victoria*	2 10 0	1½	1½ 1½	Fully pd.
3000	Bellavista, <i>s.</i> Peru* (£10 shares)	10 0 0	...	...	Fully pd.
80000	Blue Tent, <i>h. l.</i> California	5 0 0	5½	5 5½	Fully pd.
50000	Branganza, <i>c.</i> Brazil*	0 15 0	...	...	Oct. 1870
12000	Camp Floyd, <i>s.</i> Utah*	10 0 0	...	...	Fully pd.
35000	Cesena Sulphur Company, Romanga, Italy*	10 0 0	...	...	Fully pd.
50152	Chontales, <i>c.</i> s. Nicaragua* (and 12,542 of £1 15s.)	2 0 0	7½	¾ ¾	Fully pd.
4000	Clifton, <i>c.</i> Colorado*	5 0 0	...	...	Feb. 1872
10000	Crescent, <i>c.</i> Plumas County, California*	10 0 0	...	...	Fully pd.
100000	Cuiaba, <i>g.</i> Minas Geraes, Brazil*	0 17 6	...	...	June 1872
10000	Douglas, <i>s.</i> Georgetown, Col.	5 0 0	...	...	Fully pd.
7500	East Sheboygan Preference* (40,000 ordinary shares)	2 0 0	...	...	Fully pd.
35000	Excelsior Hydraulic Gold Washing Co., California*	6 0 0	...	...	Dec. 1871
60000	Exchequer, <i>c.</i> s. California*	1 0 0	...	...	Fully pd.
15000	Frontino and Bolivia, <i>c.</i> New Granada*	2 0 0	¾	¾ ¾	Fully pd.
50000	General Brazilian, <i>g.</i> *	1 0 0	...	...	Fully pd.
10000	Goetzels Tunnel Co., Georgetown, Col.	7 0 0	...	...	Fully pd.
40000	Holcombe Valley, <i>g.</i> California	1 0 0	1	¾ 1	July 1873
4000	Hornachos, <i>s. l.</i> (£10 shares)	7 0 0	...	...	Jan. 1874
50000	Imperial Brazilian Collieries, Brazil*	5 0 0	...	...	Fully pd.
15000	Independence, <i>c.</i> California*	5 0 0	...	2¼ 2¼	Fully pd.
20000	I. X. L., <i>c.</i> s. California*	5 0 0	...	...	Fully pd.
50000	Javali, <i>c.</i> Nicaragua*	2 0 0	¾	¾ ¾	Fully pd.
12000	Lanestosa, <i>s. l.</i> c. Vizcaya, Spain (£2 shares)	1 10 0	...	...	Jan. 1874
65000	London and California, <i>g.</i> *	1 0 0	...	...	Fully pd.
75000	Malabar, <i>c.</i> Colombia* (65000 issued)	1 0 0	7½	¾ ¾	Fully pd.
4000	Malaga, <i>i.</i> Spain*	10 0 0	...	...	Fully pd.
40000	Malpaso, <i>c.</i> Colombia* (10000 pref. shares, 5s. paid)	1 0 0	¾	¾ ¾	Fully pd.
12000	Meisenberg, <i>c.</i> Honnef, Germany*	5 5 0	...	...	Fully pd.
14000	Montague & Waverley Gold Quartz Crushing Co., N. Scot.	2 0 0	...	...	Allocation
4000	Monte Loretto, <i>c.</i> s. Italy*	5 0 0	...	...	Fully pd.
15000	New Pacific, <i>c.</i> s. Nevada*	0 7 6	5½	¾ ¾	Jan. 1874
60000	New Quebrada, <i>c.</i> Venezuela*	5 0 0	4	8½ 8½	Fully pd.
70000	New Rosario, <i>s.</i> Mexico*	1 0 0	...	¾	Fully pd.
20000	New Zealand Kapanga, <i>c.</i> Coromandel*	5 0 0	5½	4½ 5	Fully pd.
10000	Newfoundland, <i>s. l.</i>	10 0 0	...	...	Fully pd.
20000	North American, <i>g.</i> *	4 0 0	...	...	Fully pd.
50000	Panuelillo, <i>c.</i> Chili*	4 0 0	1½	1¼ 1¼	Fully pd.
80000	Pastorena United, <i>c.</i> Italy*	3 0 0	¾	¾ ¾	Fully pd.
80000	Rica, <i>c.</i> Colombia* (40000 issued)	1 0 0	¾	¾ ¾	Fully pd.
100000	Rio Tinto, <i>c.</i> Huella, Spain	6 10 0	7	7 7½	Jan. 1874
100000	Rossa Grande, <i>c.</i> Brazil* (£1 shares)	0 10 0	½	¾ ¾	July 1872
25000	Ruby Consolidated, <i>s.</i> Nevada*	10 0 0	...	...	Fully pd.
20000	Russia, <i>c.</i> Orenburg and Uta*	10 0 0	8½	8 8½	Fully pd.
25000	San Pedro, <i>c.</i> Chili*	2 0 0	2½	1¾ 2	Fully pd.
30000	Santa Barbara, <i>s.</i> c. Brazil	0 7 6	1	¾ 1	Mar. 1872
10000	Silver Plume, <i>s.</i> Colorado*	1 0 0	1	...	Fully pd.
37500	Snowdrift, <i>s.</i> Colorado*	2 0 0	...	...	Fully pd.
225000	St. John del Rey* (45 stock and its multiples can be dealt in)	...	225	245 255	"Stock"
25000	Star of Nevada, <i>s.</i> (12000 issued)	2 0 0	...	...	Fully pd.
30000	Tecoma, <i>c.</i> Nevada*	10 0 0	¾	1¼ 1¼	Fully pd.
20000	Thornhill Reef, <i>g.</i> Australia*	1 0 0	¾	¾ ¾	Fully pd.
43174	United Mexican, <i>s.</i> Mexico* [1]	28 8	8½	23 3¾	Mar. 1866
14000	Utah, <i>c. s. l.</i> Utah*	10 0 0	1½	1 1½	Fully pd.
75000	Yorke Peninsula, <i>c.</i> South Australia	1 0 0	1½	1 1½	Fully pd.